L E A P
COMMITTEE

K-12 STATEWIDE REPORTING SYSTEM

CLASS SIZE INFORMATION

REPORT TO THE LEGISLATURE

December 1, 1988

STATE OF WASHINGTON
LEGISLATIVE EVALUATION & ACCOUNTABILITY PROGRAM COMMITTEE

December 14, 1988

TO: Interested Parties

FROM: Bob Fitchitt

SUBJECT: **STUDY OF K-12 CLASS SIZE AND STUDENT/TEACHER RATIOS**

The Legislative Evaluation and Accountability Program (LEAP) Committee was directed by the legislature to study class size in kindergarten through twelfth grade and prepare a report containing findings. This direction prompted a series of meetings with legislators, local school district personnel, representatives of the Office of the Superintendent of Public Instruction (OSPI) and with representatives of the several associations involved in public school education. These meetings concerned study scope, methodology, response rate, and other factors. These discussions led to a decision to do the study in four parts. Reports summarizing each part of the study are included with this transmittal.

Part I Student/Teacher Ratios: National Data Collection and Reporting

... identifies who gathers student/teacher data, the state sources of that data, the definitions used, and who compiles the data. The report addresses the question of comparability of student/teacher ratio rankings.

Part II Student/Teacher Ratios: State Comparisons

... identifies the reasons for major differences in student/teacher ratios between states. The analysis involves detailed information from 10 selected states plus the State of Washington.

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Part III K-12 Statewide Reporting System: Class Size Information
... describes actual class sizes in local school districts throughout Washington State. Actual class size information was obtained from over 70,000 individual classes.

Part IV Class Size Study
... describes factors other than numeric class size that impact the classroom e.g., use of teacher aides and students requiring special assistance. Data for this report was gathered from on-site visits to classrooms in eight local school districts.

The LEAP Committee contracted with the Puget Sound Education Consortium (PSEC) to perform the student/teacher ratio studies (Parts I and II). Part III was done by LEAP staff with a great deal of help from OSPI, the Washington School Information Processing Coop (WSIPC) and literally hundreds of local school district personnel who recorded, checked, and reported the class size data. Part IV was planned and carried out by the House and Senate Education Committee staffs.

This report represents the product of considerable work by a large number of people. I appreciate the cooperation we received and trust the material can help focus discussions regarding class size in the public schools.

BF:ts

Attachments

K-12 STATEWIDE REPORTING SYSTEM

CLASS SIZE INFORMATION

REPORT TO THE LEGISLATURE

December 1, 1988

K-12 STATEWIDE REPORTING SYSTEM
CLASS SIZE INFORMATION

REPORT TO THE LEGISLATURE

PART I

STUDENT/TEACHER RATIOS:

NATIONAL DATA COLLECTION AND REPORTING

by: Puget Sound Education Consortium

STUDENT/TEACHER RATIOS: NATIONAL DATA COLLECTION AND REPORTING

EXECUTIVE SUMMARY

LEGISLATIVE EVALUATION AND ACCOUNTABILITY PROGRAM COMMITTEE

MARCH 1988

RAY TOBIASON

STUDENT/TEACHER RATIOS
NATIONAL DATA COLLECTION AND REPORTING

Who gathers national education data? What are the sources of information within each state? Who prepares the reported data? How is it collected? What are the definitions used in an attempt to achieve comparability of data from state to state? Are the data, as reported nationally, comparable from state to state? Who provides rankings of states? Are these rankings accurate?

These and numerous other questions have surfaced in the last four years with the advent of the United States Department of Education "wall charts" which compare states on many variables including student/teacher ratios. As a result of public pressure for information, Secretary William J. Bennett directed the U.S. Department of Education to begin two parallel efforts in 1984 to (1) identify indicators and (2) fill needed gaps in information. The next effort, then, was to inform the Nation of the findings. This is done through the annually published charts and documents titled *Indicators of Education - Status and Trends*.

Significant questions in Washington State focus on the reporting of student/teacher ratios and the ranking of states based on the data. Who gathers the data on students and staff? How is it done? How is it analyzed? Is a report on student/teacher ratio comparable from state to state?

WHAT IS THE BOTTOM LINE ON COMPARABILITY?

> ***While there are problems with definitions, research sophistication, and design of some data requests, the problems seem quite limited in terms of the impact on the final calculation of student/teacher ratios. If all discrepancies could be cleared up, the spread from the lower quartile to the upper quartile of student/teacher ratios might be reduced. However, the change in ranking would likely be very limited.***

WHO GATHERS AND REPORTS DATA NATIONALLY ON STUDENT/TEACHER RATIOS?

There are three national organizations that are involved in the gathering of student and staff data and in reporting these through special publications in narrative and graphic form. These three are (1) Center for Education Statistics; (2) National Education Association: and (3) Educational Research Service. All national statistics, while sometimes disseminated by other organizations, have their genesis in one of these three groups.

CENTER FOR EDUCATION STATISTICS

The Center for Education Statistics (CES), a division of the U. S. Department of Education, is located in Washington, D.C. The Center's purpose, as mandated in Section 406 (b) of the General Education Provisions Act, is "to collect and disseminate statistics and other data related to education in the United States and in other nations. The Center shall . . . collect, collate, and from time to time, report full and complete statistics on the conditions of education in the United States; conduct and publish reports on specialized analyses of the meaning and significance of such statistics; . . . and review and report on education activities in foreign countries."

The Center administers the Common Core of Data (CCD) survey, which is an annual survey of the State-level education agencies in the 50 States, the District of Columbia, and outlying areas. Each state agency has one person responsible for the filing of data on the CCD. Statistical information is reported on staff and students at the school, local education agency (LEA), and State levels; revenues and expenditures are reported at the LEA and State levels. Data are collected on a school year basis (July 1 through June 30). Survey instruments are sent to the States by October 15 of the subsequent school year; States have a period of 2 years in which to modify the data originally submitted.

Data are reported through the annual publication of *The Condition of Education, a Statistical Report,* and *Digest of Education Statistics.* The most recent editions are dated May, 1987. In addition, specialized reports are issued from time to time. One of these is the *Early Estimates* bulletin, first published in December, 1987, which reports key statistics early in the school year.

NATIONAL EDUCATION ASSOCIATION

The National Education Association (NEA), reports public school data for the 50 states and the District of Columbia in its annual publication, *Estimates of School Statistics.* The data are based on survey responses of State education agencies, which are asked to provide estimated data for the current year and revisions to 4 years of historical data, as necessary.

In the fall of each year, NEA submits current-year estimates of over 35 educational statistics to each State's department of education for verification, revision, or both. The NEA estimates result from regression analysis, a statistical technique designed to predict data using specified criteria. Generally, about 30 states adjust the NEA estimates based on their own data. If an education department does not replace these estimates with their own data, the original regression-generated figures appear in the NEA publication.

In some states, the same education department official is responsible for providing both CES and NEA with data. In the State of Washington, those functions are separated. The data are taken at different time periods, and in the case of our state, appear quite different.

EDUCATIONAL RESEARCH SERVICE

The Educational Research Service (ERS), located in Arlington, VA, is an information source for school management sponsored by several administrator associations. The leading document published by ERS in the staffing area is titled *School Staffing Ratios*, with the most recent dated 1986-87. Through a survey of member districts, data are collected on the number of staff in each of 22 professional positions and 10 support positions, and on the fall enrollment of the school system. Various student/staff and teacher/staff ratios are computed using these figures. The data are presented and analyzed according to four enrollment size groupings of school systems and five per student expenditure levels of school systems.

The student/staff ratios contained in the report include the number of students per: teacher; counselor; librarian; school nurse; principal; assistant principal; central office professional staff member; and teacher aide. While providing a wealth of information, the reports are not presented by state or region, and therefore have limited value in establishing relationships among states and regions. In addition, the tables reflect only a summary of the data reported to ERS by the responding school systems in the nation-wide panel sample. The questionnaire was mailed to 1,718 of the approximately 11,257 public school systems in the United States enrolling 300 or more students.

WHAT IS WASHINGTON STATE'S CURRENT REPORTED STUDENT/TEACHER RATIO AND HOW DOES THIS RANK COMPARE TO OTHER STATES?

First we must note that definitions are critical when seeking comparability of data. A common cause of misunderstanding in the staffing area, for example, is the interchangeable use of two terms which have quite different meaning, "class size" and "student/teacher ratio." While class size refers to the actual number of students with a teacher in a classroom, student/teacher ratio is a mathematical computation based on the total number of students in an organizational unit divided by the total number of teachers. Due to such factors as preparation periods, small specialized classes, and use of specialists, the student/teacher ratio may not indicate very well the number of students actually in each class. This study deals with student/teacher ratios.

The information presented here is based on data reported by the Center for Education Statistics. Table A lists the states and District of Columbia in alphabetical order with the data for each of eight variables.

TABLE 6

STATE DATA

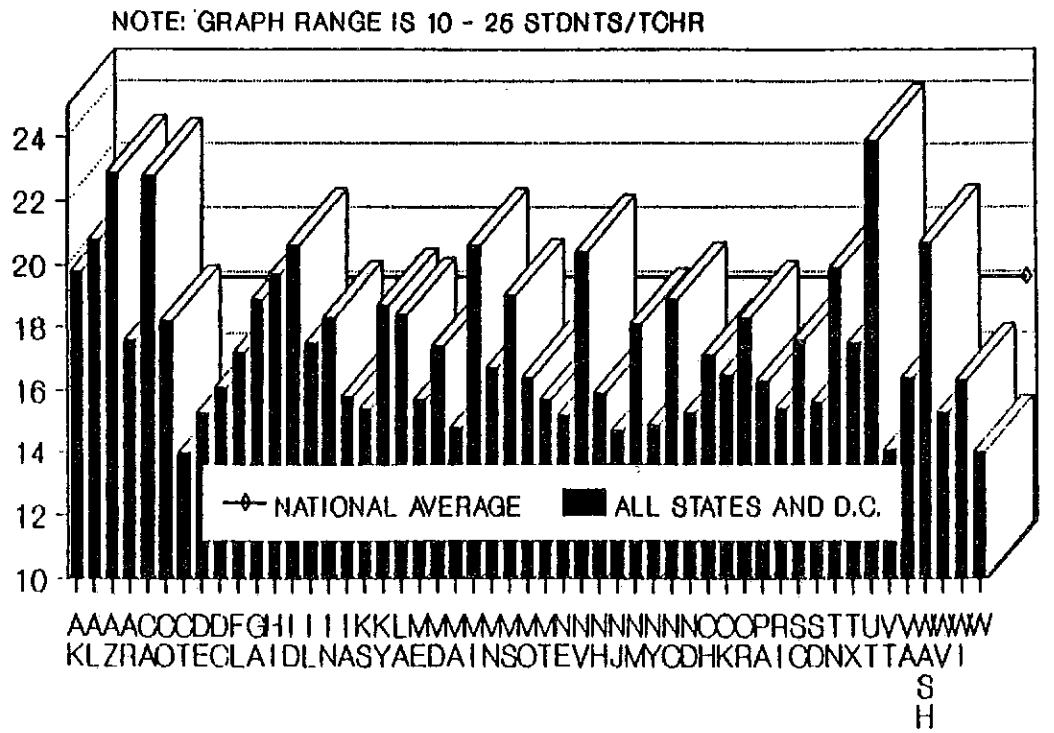
	STATE	STDNT POP.	TEACH. POP.	STDNT/ TEACH.	TOTAL STAFF	% STAFF/ TEACHERS	ST/STAFF RATIO	EST.'87 S/T RATIO	EST.'87 $/STDNT
1	ALABAMA	733,735	36,971	19.8	70,907	52.1%	10.3	19.5	$2,502
2	ALASKA	107,973	6,448	16.7	9,810	65.7%	11.0	16.4	$6,275
3	ARIZONA	534,538	29,104	18.4	56,207	51.8%	9.5	18.3	$3,830
4	ARKANSAS	437,638	24,944	17.5	46,372	53.8%	9.4	14.6	$2,463
5	CALIFORNIA	4,377,989	190,484	23.0	385,244	49.4%	11.4	22.8	$3,943
6	COLORADO	558,415	30,704	18.2	58,537	52.5%	9.5	18.1	$3,803
7	CONNECTICUT	468,847	34,252	13.7	39,284	87.2%	11.9	13.4	$4,731
8	D.C.	85,612	5,984	14.3	10,597	56.5%	8.1	13.7	$4,555
9	DELAWARE	94,410	5,883	16.0	11,945	49.3%	7.9	16.1	$5,194
10	FLORIDA	1,607,320	91,969	17.5	177,639	51.8%	9.0	17.4	$3,907
11	GEORGIA	1,096,425	57,881	18.9	111,317	52.0%	9.8	19.5	$2,996
12	HAWAII	164,640	7,291	22.6	15,892	45.9%	10.4	21.6	$3,581
13	IDAHO	208,391	10,234	20.4	16,039	63.8%	13.0	20.1	$2,555
14	ILLINOIS	1,825,185	104,609	17.4	185,572	56.4%	9.8	17.7	$3,656
15	INDIANA	966,780	52,896	18.3	104,482	50.6%	9.3	18.0	$3,413
16	IOWA	481,286	30,958	15.5	56,825	54.5%	8.5	15.5	$3,759
17	KANSAS	416,091	27,064	15.4	47,227	57.3%	8.8	15.4	$3,691
18	KENTUCKY	642,778	34,507	18.6	67,721	51.0%	9.5	18.2	$2,652
19	LOUISIANA	795,188	42,929	18.5	88,591	48.5%	9.0	18.4	$3,302
20	MAINE	211,752	13,685	15.5	22,966	59.6%	9.2	15.6	$3,538
21	MARYLAND	675,747	39,491	17.1	72,931	54.1%	9.3	17.1	$4,451
22	MASSACHUSETTS	833,918	58,066	14.4	101,905	57.0%	8.2	14.3	$4,497
23	MICHIGAN	1,681,880	83,130	20.2	171,931	48.4%	9.8	20.1	$4,083
24	MINNESOTA	711,134	40,957	17.4	69,836	58.6%	10.2	17.1	$4,202
25	MISSISSIPPI	498,639	26,219	19.0	40,687	64.4%	12.3	19.0	$2,688
26	MISSOURI	800,606	48,902	16.4	91,609	53.4%	8.7	16.4	$3,242
27	MONTANA	163,327	9,818	15.6	12,613	77.8%	12.2	15.5	$4,117
28	NEBRASKA	267,139	17,748	15.1	31,576	56.2%	8.5	15.2	$3,827
29	NEVADA	161,239	7,908	20.4	9,212	85.8%	17.5	20.3	$3,398
30	NEW HAMPSHIRE	163,717	10,300	15.9	18,352	56.1%	8.9	15.6	$3,479
31	NEW JERSEY	1,107,467	75,558	14.7	139,541	54.1%	7.9	14.4	$5,791
32	NEW MEXICO	281,943	14,876	19.0	28,548	52.1%	9.9	19.2	$3,247
33	NEW YORK	2,607,719	168,940	15.4	317,792	53.2%	8.2	14.8	$6,099
34	NORTH CAROLINA	1,085,248	58,103	18.7	105,047	55.3%	10.3	18.5	$3,640
35	NORTH DAKOTA	118,703	7,779	15.3	13,693	56.8%	8.7	17.3	$3,284
36	OHIO	1,793,508	98,894	18.1	182,796	54.1%	9.8	18.1	$3,737
37	OKLAHOMA	593,183	35,041	16.9	65,253	53.7%	9.1	17.0	$3,085
38	OREGON	449,307	24,615	18.3	46,598	52.8%	9.6	18.3	$3,762
39	PENNSYLVANIA	1,674,161	102,993	16.3	197,861	52.1%	8.5	16.1	$4,570
40	RHODE ISLAND	134,126	8,916	15.0	14,317	62.3%	9.4	15.0	$4,840
41	SOUTH CAROLINA	611,629	35,349	17.3	61,847	57.2%	9.9	17.5	$2,985
42	SOUTH DAKOTA	125,458	8,031	15.6	13,903	57.8%	9.0	15.5	$3,087
43	TENNESSEE	818,073	41,103	19.9	80,968	50.8%	10.1	19.8	$2,636
44	TEXAS	3,209,515	185,310	17.3	374,721	49.5%	8.6	17.6	$3,149
45	UTAH	415,994	17,752	23.4	30,501	58.2%	13.6	23.9	$2,507
46	VERMONT	92,112	6,397	14.4	10,950	58.4%	8.4	14.3	$4,350
47	VIRGINIA	975,135	58,141	16.8	108,455	53.6%	9.0	16.7	$3,668
48	WASHINGTON	761,428	37,065	20.5	65,955	56.2%	11.5	20.6	$3,947
49	WEST VIRGINIA	351,837	22,931	15.3	41,653	55.1%	8.4	15.2	$3,750
50	WISCONSIN	767,819	47,039	16.3	79,086	59.5%	9.7	16.3	$4,224
51	WYOMING	100,955	7,201	14.0	14,326	50.3%	7.0	15.1	$6,084
52									
53	TOTAL	39,837,459	2,243,370	17.8	4,197,637	53.4%	9.5	17.7	$3,867
54									
55	STATE	STUDENTS	TEACHERS	P/T RATIO	TOT STAFF	%STAFF TEACH	S/TS RATIO	P/T EST	FTE EXP.

DATA: CENTER FOR EDUCATION STATISTICS (all 1986 unless specified)

The fall 1986 student/teacher ratio for the State of Washington was 20.5 students per teacher. The estimate for the fall of 1987 increased to 20.6 students per teacher. In a total of 51 positions (50 states plus the District of Columbia), Washington ranks 48th, with only Hawaii, California and Utah reporting a higher student/teacher ratio. The ratios range from a low of 13.7 in Connecticut to a high of 23.4 in Utah.

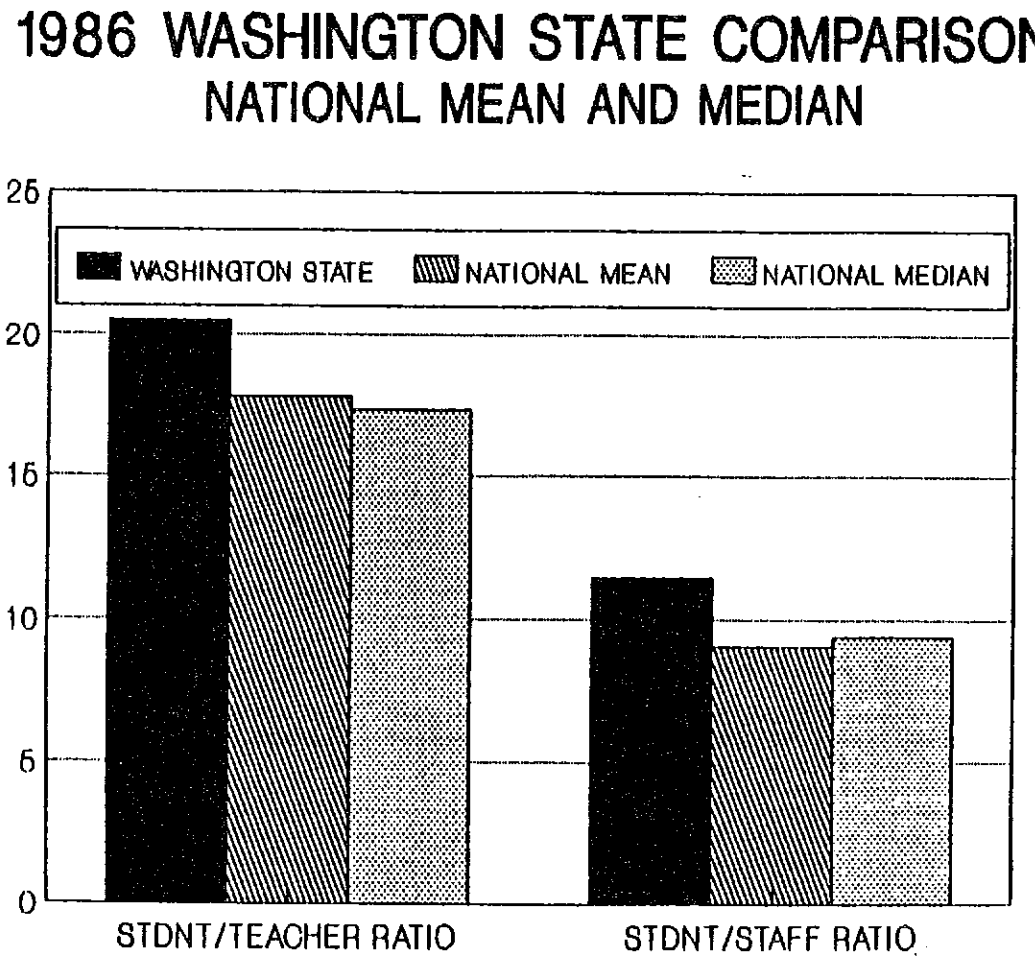
Graph 1, *Student/Teacher Ratios, Fall 1986*, shows the ratio for each state.

STUDENT/TEACHER RATIOS
FALL, 1986



GRAPH 1

The relationship of Washington's student/teacher and student/total staff ratios to the national average and national median is shown in Graph 2, *1986 Washington State Comparison, National Mean and Median.* The national average student/teacher ratio is 17.8 and the median 17.3 compared to Washington's 20.5. The national average for students/total staff ratio is 9.1 and the median 9.4 compared to Washington's 11.5.



GRAPH 2

Table B, *State Rankings*, sorts the data in Table A by the following information columns:

Column 1: Student/Teacher ratios from lowest (Connecticut, 13.7) to highest (Utah, 23.4) and Washington ranks 48th.
Column 2: Per cent of total staff as teachers from highest (Connecticut, 87.2%) to Hawaii (45.9%). Washington ranks 21st.
Column 3: Student/total staff ratio from lowest (Wyoming, 7.0) to highest (Nevada, 17.5) Washington ranks 45th.
Column 4: Estimated 1987 student/teacher ratio from lowest (Connecticut, 13.4) to highest (Utah, 23.9). Washington-48th.
Column 9: Estimated 1987 expenditures per student from highest Alaska, $6,275) to Arkansas ($2,463). Washington 17th.

TABLE B

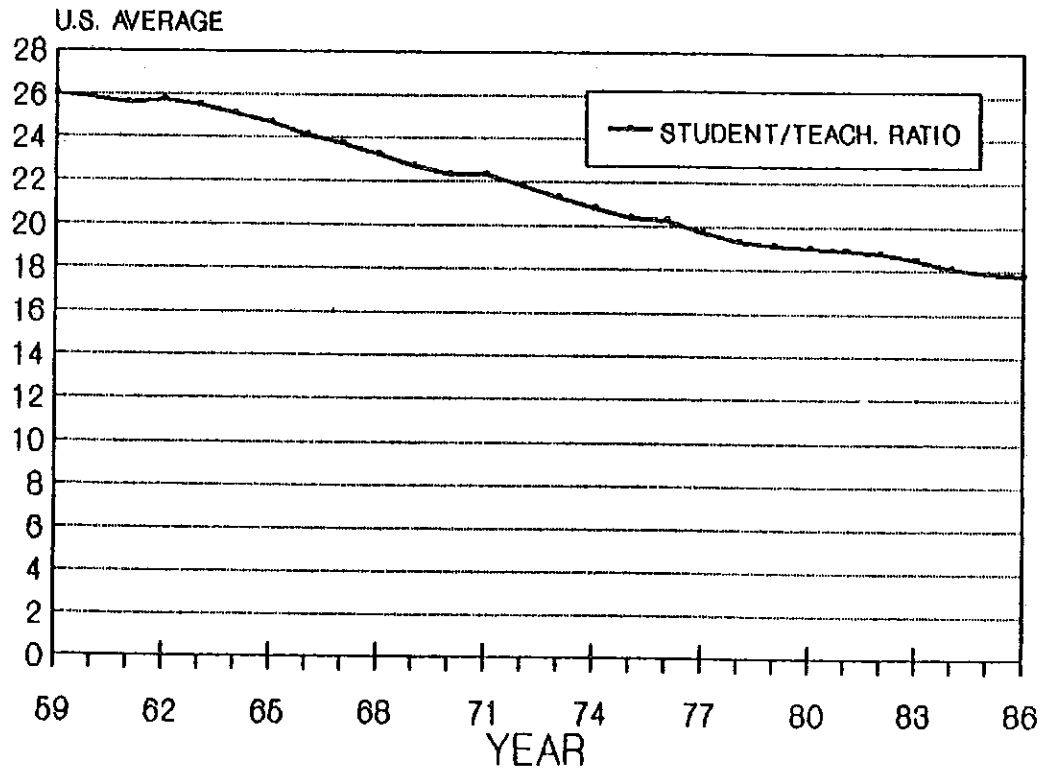
STATE RANKING

	STUDENT/ TEACHER RATIO		% STAFF AS TEACHERS		STUDENT/TOTAL STAFF RATIO		EST. '87 STUDENT/ TEACHER RATIO		EST. '87 EXPENDITURE PER STUDENT	
1	CONNECTICUT	13.7	CONNECTICUT	87.2%	WYOMING	7.0	CONNECTICUT	13.4	ALASKA	$6,275	1
2	WYOMING	14.0	NEVADA	85.8%	DELAWARE	7.9	D.C.	13.7	NEW YORK	$6,099	2
3	D.C.	14.3	MONTANA	77.8%	NEW JERSEY	7.9	MASSACHUSETT	14.3	WYOMING	$6,084	3
4	MASSACHUSETT	14.4	ALASKA	65.7%	D.C.	8.1	VERMONT	14.3	NEW JERSEY	$5,791	4
5	VERMONT	14.4	MISSISSIPPI	64.4%	MASSACHUSETT	8.2	NEW JERSEY	14.4	DELAWARE	$5,194	5
6	NEW JERSEY	14.7	IDAHO	63.8%	NEW YORK	8.2	ARKANSAS	14.6	RHODE ISLAND	$4,840	6
7	RHODE ISLAND	15.0	RHODE ISLAND	62.3%	VERMONT	8.4	NEW YORK	14.8	CONNECTICUT	$4,731	7
8	NEBRASKA	15.1	MAINE	59.6%	WEST VIRGINI	8.4	RHODE ISLAND	15.0	PENNSYLVANIA	$4,570	8
9	NORTH DAKOTA	15.3	WISCONSIN	59.5%	NEBRASKA	8.6	WYOMING	15.1	D.C.	$4,555	9
10	WEST VIRGINI	15.3	MINNESOTA	58.6%	PENNSYLVANIA	8.5	NEBRASKA	15.2	MASSACHUSETT	$4,497	10
11	KANSAS	15.4	VERMONT	58.4%	IOWA	8.5	WEST VIRGINI	15.2	MARYLAND	$4,451	11
12	NEW YORK	15.4	UTAH	58.2%	TEXAS	8.6	KANSAS	15.4	VERMONT	$4,350	12
13	MAINE	15.5	SOUTH DAKOTA	57.8%	NORTH DAKOTA	8.7	IOWA	15.5	WISCONSIN	$4,224	13
14	IOWA	15.5	KANSAS	57.3%	MISSOURI	8.7	MONTANA	15.5	MINNESOTA	$4,202	14
15	MONTANA	15.6	SOUTH CAROLI	57.2%	KANSAS	8.8	SOUTH DAKOTA	15.5	MONTANA	$4,117	15
16	SOUTH DAKOTA	15.6	MASSACHUSETT	57.0%	NEW HAMPSHIR	8.9	MAINE	15.6	MICHIGAN	$4,083	16
17	NEW HAMPSHIR	15.9	NORTH DAKOTA	56.8%	LOUISIANA	9.0	NEW HAMPSHIR	15.6	WASHINGTON	$3,947	17
18	DELAWARE	16.0	D.C.	56.5%	VIRGINIA	9.0	DELAWARE	16.1	CALIFORNIA	$3,943	18
19	PENNSYLVANIA	16.3	ILLINOIS	56.4%	SOUTH DAKOTA	9.0	PENNSYLVANIA	16.1	FLORIDA	$3,907	19
20	WISCONSIN	16.3	NEBRASKA	56.2%	FLORIDA	9.0	WISCONSIN	16.3	ARIZONA	$3,830	20
21	MISSOURI	16.4	WASHINGTON	56.2%	OKLAHOMA	9.1	ALASKA	16.4	NEBRASKA	$3,827	21
22	ALASKA	16.7	NEW HAMPSHIR	56.1%	MAINE	9.2	MISSOURI	16.4	COLORADO	$3,803	22
23	VIRGINIA	16.8	NORTH CAROLI	55.3%	INDIANA	9.3	VIRGINIA	16.7	OREGON	$3,762	23
24	OKLAHOMA	16.9	WEST VIRGINI	55.1%	MARYLAND	9.3	OKLAHOMA	17.0	IOWA	$3,759	24
25	MARYLAND	17.1	IOWA	54.5%	RHODE ISLAND	9.4	MARYLAND	17.1	WEST VIRGINI	$3,750	25
26	SOUTH CAROLI	17.3	MARYLAND	54.1%	ARKANSAS	9.4	MINNESOTA	17.1	OHIO	$3,737	26
27	TEXAS	17.3	NEW JERSEY	54.1%	KENTUCKY	9.5	NORTH DAKOTA	17.3	KANSAS	$3,691	27
28	MINNESOTA	17.4	OHIO	54.1%	ARIZONA	9.5	FLORIDA	17.4	VIRGINIA	$3,668	28
29	ILLINOIS	17.4	ARKANSAS	53.8%	COLORADO	9.5	SOUTH CAROLI	17.5	ILLINOIS	$3,656	29
30	FLORIDA	17.5	OKLAHOMA	53.7%	OREGON	9.6	TEXAS	17.6	NORTH CAROLI	$3,640	30
31	ARKANSAS	17.5	VIRGINIA	53.6%	WISCONSIN	9.7	ILLINOIS	17.7	HAWAII	$3,581	31
32	OHIO	18.1	MISSOURI	53.4%	MICHIGAN	9.8	INDIANA	18.0	MAINE	$3,538	32
33	COLORADO	18.2	NEW YORK	53.2%	OHIO	9.8	COLORADO	18.1	NEW HAMPSHIR	$3,479	33
34	OREGON	18.3	OREGON	52.8%	ILLINOIS	9.8	OHIO	18.1	INDIANA	$3,413	34
35	INDIANA	18.3	COLORADO	52.5%	GEORGIA	9.8	KENTUCKY	18.2	NEVADA	$3,398	35
36	ARIZONA	18.4	ALABAMA	52.1%	NEW MEXICO	9.9	ARIZONA	18.3	LOUISIANA	$3,302	36
37	LOUISIANA	18.5	NEW MEXICO	52.1%	SOUTH CAROLI	9.9	OREGON	18.3	NORTH DAKOTA	$3,284	37
38	KENTUCKY	18.6	PENNSYLVANIA	52.1%	TENNESSEE	10.1	LOUISIANA	18.4	NEW MEXICO	$3,247	38
39	NORTH CAROLI	18.7	GEORGIA	52.0%	MINNESOTA	10.2	NORTH CAROLI	18.5	MISSOURI	$3,242	39
40	GEORGIA	18.9	ARIZONA	51.8%	NORTH CAROLI	10.3	MISSISSIPPI	19.0	TEXAS	$3,149	40
41	NEW MEXICO	19.0	FLORIDA	51.8%	ALABAMA	10.3	NEW MEXICO	19.2	SOUTH DAKOTA	$3,087	41
42	MISSISSIPPI	19.0	KENTUCKY	51.0%	HAWAII	10.4	ALABAMA	19.5	OKLAHOMA	$3,085	42
43	ALABAMA	19.8	TENNESSEE	50.8%	ALASKA	11.0	GEORGIA	19.5	GEORGIA	$2,996	43
44	TENNESSEE	19.9	INDIANA	50.6%	CALIFORNIA	11.4	TENNESSEE	19.8	SOUTH CAROLI	$2,985	44
45	MICHIGAN	20.2	WYOMING	50.3%	WASHINGTON	11.5	IDAHO	20.1	MISSISSIPPI	$2,688	45
46	IDAHO	20.4	TEXAS	49.5%	CONNECTICUT	11.9	MICHIGAN	20.1	KENTUCKY	$2,652	46
47	NEVADA	20.4	CALIFORNIA	49.4%	MONTANA	12.2	NEVADA	20.3	TENNESSEE	$2,636	47
48	WASHINGTON	20.5	DELAWARE	49.3%	MISSISSIPPI	12.3	WASHINGTON	20.6	IDAHO	$2,555	48
49	HAWAII	22.6	LOUISIANA	48.5%	IDAHO	13.0	HAWAII	21.6	UTAH	$2,507	49
50	CALIFORNIA	23.0	MICHIGAN	48.4%	UTAH	13.6	CALIFORNIA	22.8	ALABAMA	$2,502	50
51	UTAH	23.4	HAWAII	45.9%	NEVADA	17.5	UTAH	23.9	ARKANSAS	$2,463	51

HOW HAVE STUDENT/TEACHER AND STUDENT/TOTAL STAFF RATIOS CHANGED OVER THE YEARS?

Student/teacher ratios, as reported by CES, have steadily decreased over the years. Graph 3, *Pupil Teacher Ratio, 1959-60 to 1986-87*, shows the decline in the United States average ratio from 1959 through 1986. The 1959 ratio of 26.0 dropped to 22.4 by 1969, 19.1 by 1979, and 17.5 in 1986. The drop has been steady over the years.

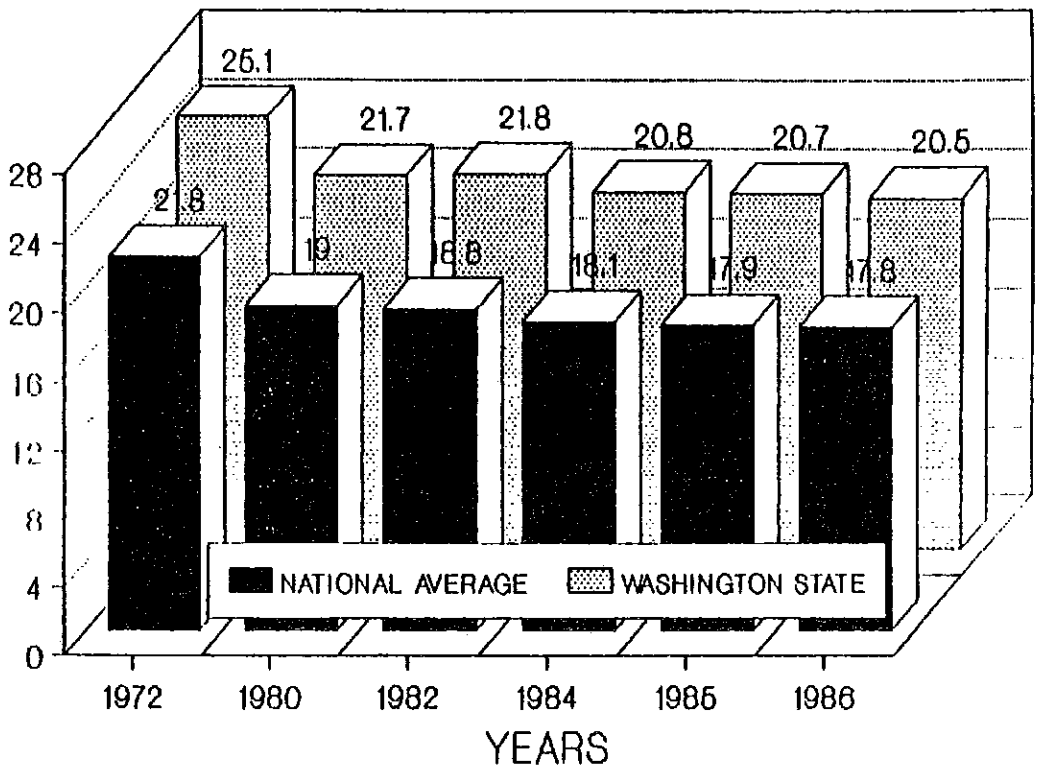
STUDENT/TEACHER RATIOS
1959 THROUGH 1986



GRAPH 3

Graph 4, *Student/Teacher Ratios, Washington State and National Average*, shows that the State of Washington had a significant drop in the student/teacher ratio from 1972 to 1980, but not as great as the national drop. Since 1980, the national average has continued to decline at a more rapid pace than for Washington State.

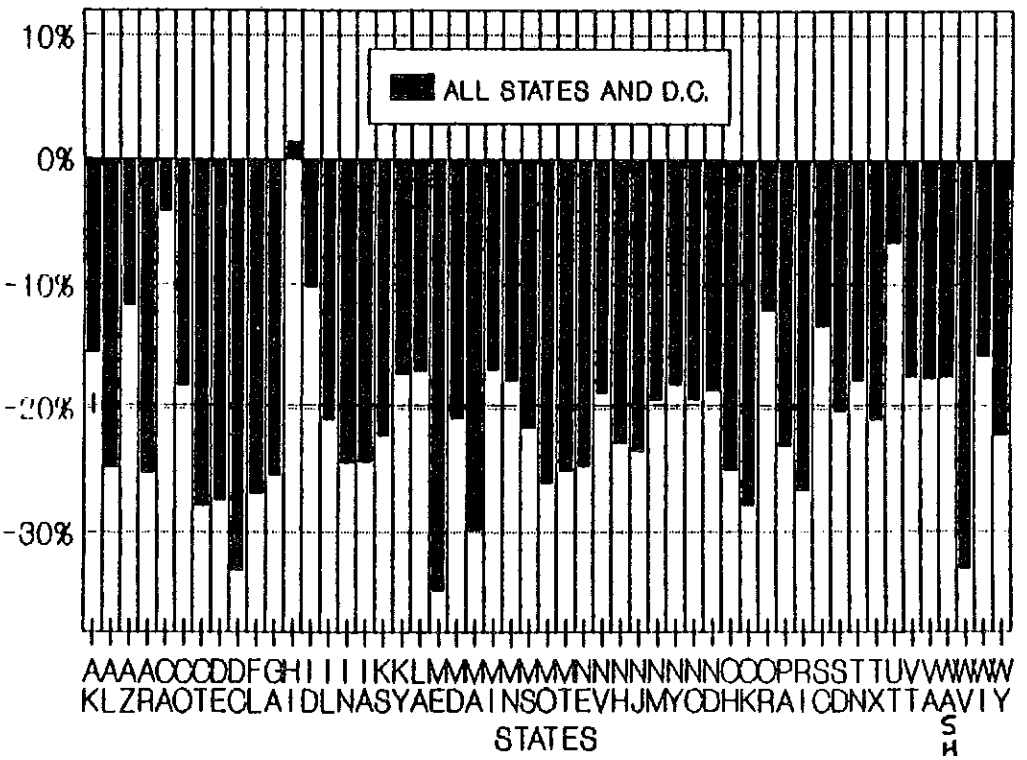
STUDENT/TEACHER RATIOS
WASHINGTON STATE AND NATIONAL AVERAGE



GRAPH 4

Graph 5, *Changes in Ratios, 1972 to 1986 (%)*, shows the per cent change in the student/teacher ratio for each of the states for that period. In every state except Hawaii, the ratio has declined with the 34.7% in Maine being the largest. During this period, Washington declined 17.5%.

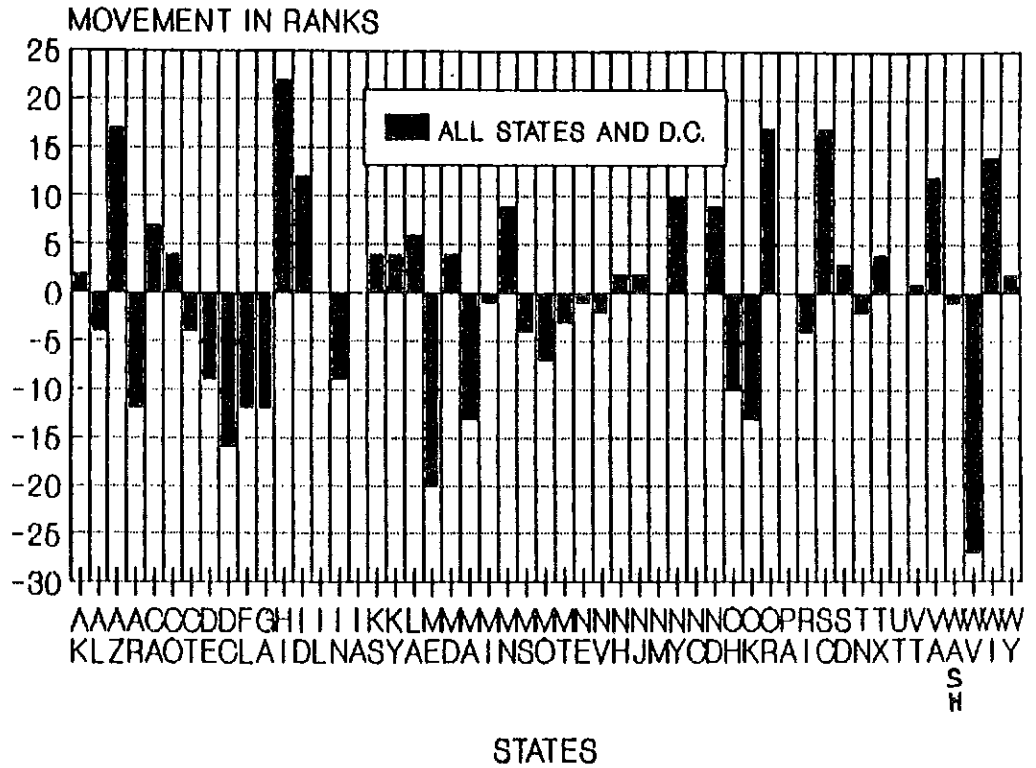
PER CENT CHANGES IN RATIO
1972 TO 1986



GRAPH 6

Graph 6, *Changes in Rankings, 1972 to 1986*, shows the changes in ranking places for the period. The greatest change was in West Virginia which improved its ranking 27 positions, followed by Hawaii which moved back in its ranking 22 positions. The State of Washington has only moved one position in comparing 1972 and 1986.

CHANGES IN RANKINGS
1972 TO 1986



GRAPH 6

Table C, *Changes in Ratio and Rank - 1972 and 1986*, presents data on the ratios and ranks for those two years. Washington State dropped its student/teacher ratio by 17.5% for the 14 year period, which was slightly less than the 19.7% drop nationally. Therefore, while it appears that Washington has made improvement over the years in the student/teacher ratio, it has not kept pace with the national average. As a result, Washington, while improving its ratio from 25.1 in 1972 to 20.7 in 1986, still remains within one position of its ranking among all the states.

While total national enrollment during the period 1983 to 1986 changed from 39,351,994 to 39,837,459, an increase of 485,465 or 1.23%, the number of teachers changed from 2,126,599 to 2,243,370, an increase of 116,771 or 5.49%. For the enrollment increase during this period, one teacher was hired on the basis of every 4.16 additional students.

CHANGES IN RATIO AND RANK 1972 AND 1986

	1972 RATIO	1972 RANK	1986 RATIO	1986 RANK	CH.IN RATIO	CH.IN RANK
AL	23.9	42	20.2	44	-15.5%	2
AK	21.0	18	15.8	14	-24.8%	-4
AZ	22.2	25	19.6	42	-11.7%	17
AR	23.4	40	17.5	28	-25.2%	-12
CA	24.1	43	23.1	50	-4.1%	7
CO	22.5	31	18.4	35	-18.2%	4
CT	19.4	5	14.0	1	-27.8%	-4
DE	22.3	27	16.2	18	-27.4%	-9
DC	21.2	19	14.2	3	-33.0%	-16
FL	22.7	34	16.6	22	-26.9%	-12
GA	25.2	50	18.8	38	-25.4%	-12
HI	22.3	27	22.6	49	1.3%	22
ID	22.6	33	20.3	45	-10.2%	12
IL	22.5	31	17.8	31	-20.9%	0
IN	24.6	45	18.6	36	-24.4%	-9
IA	20.2	11	15.3	11	-24.3%	0
KS	19.8	8	15.4	12	-22.2%	4
KY	23.2	37	19.2	41	-17.2%	4
LA	22.4	30	18.6	36	-17.0%	6
ME	22.2	25	14.5	5	-34.7%	-20
MD	22.1	24	17.5	28	-20.8%	4
MA	21.2	19	14.9	6	-29.7%	-13
MI	24.8	48	20.6	47	-16.9%	-1
MN	20.8	17	17.1	26	-17.8%	9
MS	23.1	36	18.1	32	-21.6%	-4
MO	22.3	27	16.5	20	-26.0%	-7
MT	21.2	19	15.9	16	-25.0%	-3
NE	19.9	9	15.0	8	-24.6%	-1
NV	24.6	45	20.0	43	-18.7%	-2
NH	20.6	14	15.9	16	-22.8%	2
NJ	19.6	6	15.0	8	-23.5%	2
NM	23.3	38	18.8	38	-19.3%	0
NY	19.3	4	15.8	14	-18.1%	10
NC	23.3	38	18.8	38	-19.3%	0
ND	19.9	9	16.2	18	-18.6%	9
OH	24.4	44	18.3	34	-25.0%	-10
OK	23.0	35	16.6	22	-27.8%	-13
OR	20.7	16	18.2	33	-12.1%	17
PA	21.6	22	16.6	22	-23.1%	0
RI	20.6	14	15.1	10	-26.7%	-4
SC	20.2	11	17.5	28	-13.4%	17
SD	18.7	3	14.9	6	-20.3%	3
TN	24.7	47	20.3	45	-17.8%	-2
TX	22.0	23	17.4	27	-20.9%	4
UT	25.3	51	23.6	51	-6.7%	0
VT	17.1	1	14.1	2	-17.5%	1
VA	20.5	13	16.9	25	-17.6%	12
WA	25.1	49	20.7	48	-17.5%	-1
WV	23.4	40	15.7	13	-32.9%	-27
WI	19.6	6	16.5	20	-15.8%	14
WY	18.5	2	14.4	4	-22.2%	2
AVERAGE	22.3	26	17.9	26	-19.7%	

In the State of Washington, however, the change in students for this four year period from 736,239 to 761,428, an increase of 25,189 or 3.42%, was met with a change in the number of teachers from 34,757 to 37,065, an increase of 2,308 or 6.64%. For the enrollment increase during this period in the State of Washington, one teacher was hired on the basis of every 10.91 students. To have maintained its position nationally by hiring one teacher for every 4.16 students, Washington would have needed to hire 6,055 teachers from 1983-1986 which is 3,747 more teachers than were actually hired.

In summary, the State of Washington has moved ahead in the employment of teachers; however, the rate has not been great enough to gain any rank positions since most other states have also moved ahead, many at a more rapid pace than Washington.

HOW DOES THE NATIONAL EDUCATION ASSOCIATION REPORT ON STUDENT/TEACHER RATIO AND STATE RANKINGS COMPARE WITH THAT OF THE CENTER FOR EDUCATION STATISTICS?

Since the two major groups reporting student/teacher ratio and state rankings are the Center for Education Statistics and the National Education Association, a comparison of the two reports is valuable.

Although the reports are received on a different time table and, in many cases, from different persons in state education agencies, the data are surprisingly similar. Graph 7, *CES/NEA Data Compared - 1986, Difference in Student/Teacher Ratio*, shows the difference in the student/teacher ratio for each of the states, and Graph 8, *CES/NEA Data Compared -1986, % Difference Student/Teacher Ratio*, shows the per cent difference for each state.

In the State of Washington, the NEA figure for students is .05% or 343 students higher and the figure for teachers is .81% or 300 teachers higher. The effect on the student/teacher ratio is .86% higher, with the CES figure at 20.5 and the NEA figure at 20.7.

NEA's ranking of the states on student/teacher ratios for 1986 for the State of Washington is 47th of 51, one rank different than the 48 reported by CES.

WHAT DOES THE EDUCATIONAL RESEARCH SERVICE REPORT?

The Educational Research Service report for 1986-87, while not reporting by state, gives a composite picture of student/teacher ratios for the 1,000 plus districts that participated in the study. The mean ratio for all reporting districts is 18.6 as compared with CES report of all districts at 17.8. The ECS median is 18.1 and the CES median 17.3. In looking at the mean by size of district as reported by ECS, the range is from 19.7 (25,000 or more) to 16.7 (300 to 2,499). Underrepresentation in the ECS sample by smaller districts could contribute to the

differences; however, the difference in the means for the totals is only .5 student which places both reports quite close together.

Further interesting data displayed by state, by size of district, and by expenditure per student from CES and ERS are available in the complete report.

WHAT PROBLEMS COULD EXIST THAT WOULD AFFECT THE COMPARABILITY OF DATA FROM STATE TO STATE?

This is a key question. Where are the possible problems with comparability of the data? Qualifiers are contained in the prefaces and introductions of all of the reporting agencies alluding to the possibility of error in the reports. The Center for Education Statistics is staffed with highly trained statisticians who seek to compensate for possible error.

In spite of their efforts, continuing questions arise about the accuracy of the data gathered from the various state agencies. This is particularly true with financial data and with staffing data. In an effort to improve the credibility of the CES data, the Council of Chief State School Officers (CCSSO) has undertaken a three-year, three-part study of possible data collection problems. The first year study centered on fiscal data reporting, the second on student reporting, and the third on staffing. In conversations with the Executive Director of CCSSO and the staff person directly working with the study, it has become apparent that this work will assist greatly in answering the comparability question. The final report will be available for our review in June of 1988, and will explore the question in considerable depth in relationship to our conclusions.

Among the problems is the definition of a teacher. Since student/teacher ratios are calculated on the basis of classroom teachers, the possibility that other categories are being reported by states as "teachers" could have a major effect on the data for each state. The CES definition of a classroom teacher is "a staff member assigned the professional activities of instructing students in self-contained classes or courses, or in classroom situations. Usually expressed in full-time equivalents." The possibility of lumping other personnel working with students into the teaching category certainly exists, and would affect the data and ranking of a state.

In looking at the system of reporting in the State of Washington, and in discussing it with others who see data from many states, the reporting system here deserves high marks. Extensive use of electronic data transmission systems contribute to accuracy. Some states are still sending data with "a number 2 pencil." It seems that the tendency, where data collection lacks sophistication, would be to do more "lumping" of the data and, thereby, affect the comparability from state to state. Where such lumping occurs, overstating of the number of teachers and,

therefore, understating the student/teacher ratio could occur. It is the goal of the study by CCSSO this year to assess this situation and provide a remedy for future years if possible. Unfortunately, data collection using any revisions as a result of the study will not show up until 1990 or 1991; however, there will be a greater understanding of the potential problems upon release of the report.

We have determined through conversations and analysis of the reporting methodology, that the areas most subject to error are in the reporting of staff, and to a lesser extent the reporting of students.

Some of the areas that were reviewed include:

** Staff are to be reported by full-time equivalents. It was possible that some reporting was done on headcount which would inflate the number of staff. ** Teachers in some states may have more non-student contact time than in others, such as hall monitoring, department work, and yet listed as full time teacher.

** Administrators are to be reported in the support section. While all administrators are to be listed in the support section which does not affect student/teacher ratios, it is possible that some states include department heads, curriculum directors, building assistant principals. and some part-time administrative positions as "teaching."

** OT; CDS; Psychologists; Nurses; Reading Resource teachers, and the like are to be reported as "Other Support Staff" which does not affect student/teacher ratios. It would be easy to lump these in with teachers in reporting to CES. ** Instructional aides are a separate category not to be reported with teachers, but could easily be so included. This is particularly true for certificated teacher aides.

Examples of possible discrepancies from state to state regarding student reporting would include:

** Students are to be reported to CES on a "headcount" basis, not full-time equivalents. Where a state has, for example, one-half day kindergartens, each student in kindergarten, while a .5 FTE would be counted as 1.0 headcount. The same would be true where extensive out-of-school programs are operated. In that case, a student might be in the building only .2 of the time, but still counted 1.0 headcount.

** Students are not separated by "special education" or other low student/teacher ratio classes. States with more such students and classes will show a lower student/teacher ratio even though the actual class size in regular classes might be larger.
** Students should be reported on the basis of membership. The CCD form from CES calls for the reporting of student "membership" which is the unduplicated count of students on the roll of the

school or local education agency on the school day closest to October 1. Some states may use other methods of counting students, such as average daily attendance, or even a membership count on a day nearer the end of a semester when membership is usually lowest.

The forms and definitions are included in the appendix. Further study of these and the study by CCSSO may reveal other possibilities for discrepancies.

WHAT INVESTIGATIVE ACTIVITIES HAVE TAKEN PLACE TO THIS POINT?

In an effort to understand the data collection process and the national data reporting system, material was gathered from all agencies involved. In addition to numerous phone calls to every involved agency, numerous state agencies, and individuals nationally known for their interest and knowledge on the topic, personal visits were made to the Washington, D.C. headquarters of the Center for Education Statistics and the U.S. Department of Education. Discussions were held in detail with those directly responsible for the data collection, as well as those who supervise such activities. At CES, discussions were held with the person who had completed the first two investigative reviews for the Council of Chief State School Officers on the Common Core of Data (CCD) process (this person is now on the staff of CES).

At the National Education Association headquarters, discussions were held with the person who is responsible for the entire data collection and reporting system for NEA.

At the headquarters of the Council of Chief State School Officers (CCSSO) in Washington, D.C., discussions were held with the Executive Director and with the person now in charge of the review of the CCD on reporting on staffing.

A visit was made to the Educational Research Services offices in Arlington, Virginia, where the whole question of reporting and comparability was reviewed.

From each of the agencies, extensive written materials were obtained which added significant insight into the processes that are used. Many of these items are included in the appendix to this report.

Telephone conversations were held with the person in many of the states who is responsible for the CCD report. These discussions were frank and open in explaining that the purpose of the call was to learn how the process operates and to understand the possible problems in comparability. In addition, personal visits were made to several states where the student/teacher reported ratio was extremely low by comparison to the State of Washington. These included Connecticut (ranked 1), Massachusetts (ranked 4), and New Jersey (ranked 6). In addition, visits were made to Maryland (ranked 25), and California (ranked 50), as well as the

State of Washington (ranked 48). In each of these states, visits were held in the state departments of education with the persons responsible for reporting the CCD data.

BASIS FOR CONCLUSION

** The personnel reporting data vary in interest and ability regarding the task. Even greater variance exists from state to state in the sophistication of data collection. The limited use of modern technology in some locations affects the ability to report data in as clean a form, related to definitions, as from other states. However, a review of actual data used by CES in its final form indicates that they have developed ability to deal with the lack of sophistication so that the data is quite comparable.

** Only minimal discrepancies exist in the reporting of staff as headcount rather than in full-time equivalents. A variation was found where a state reported only full-time staff, but this would increase that state's student/teacher ratio rather than decrease it. There are undoubtedly instances where full-time equivalency is calculated differently, but these would not be of great significance.

** Assignment of teachers to non-student contact work varies little from state to state. Another possible discrepancy area related to the assignment of teachers to non-student contact work, such as hall monitoring. A number of states do such and report these persons as teachers (often related to retirement reporting requirements or funding formulas); however, there was little evidence that the variance in such non-contact work for a part of the day was great from state to state. It probably has little impact on the final computation.

** Reporting of some administrators as teachers occurs but does not change ranking. A review of the reports showed that the variance in the reporting of the number of administrators, usually fell on the side of fewer teachers per administrator in other states than in the state of Washington. While this may be a function of the lesser number of administrators in this state, it would also seem that any siphoning of administrators into the teaching ranks for reporting purposes would have closed the gap with this state more than it appears to have done.

** Limited reporting of specialists as classroom teachers occurs . Another area for exploration was the possibility that the number of teachers was inflated in some states with the inclusion of occupational therapists, communication disorder specialists, psychologists, nurses, reading resource teachers and the like in the classroom teacher category. A review of the reported number of such persons in each state showed only limited possibilities of this being done on a major basis. In these cases, the total numbers were small and would have minimal effect

on the final outcome of the computation.

** Reporting of teacher aides as teachers has minor effect on ranking . Another area was the possibility that instructional aides would be included as "teachers," particularly certificated instructional aides. Washington State reported 7.2% of the total staff as instructional aides. Twenty-two states report a lower percentage of instructional aides. These would be possible sites of misreporting. Only two, however, report less than 5% instructional aides and both of these states are ranked far below Washington on student/teacher ratio. Even if these two were reporting some aides as teachers, it would not change the ranking of our state.

** Full-time-equivalent reporting of students rather than headcount appears corrected by CES. A student reporting area with possible discrepancies was thought to be the concept of "headcount" reporting of students with "FTE" reporting for teachers. In one state that was visited, it was reported that they used FTE for kindergarten students (half day attendance) which, compared with other states like Washington, would affect the student/teacher ratio relationship. In reviewing the actual number of headcount students in kindergarten for that and other states, it showed that all states had approximately the same percentage of kindergarten students.

** Special education enrollment varies from state to state. An area for investigation related to the number of special education students in various states. These are not separated out from the total number of students and, therefore, the smaller classes for these students could affect the overall student/teacher level. This is true and does happen. Several states have far more identified special education students than Washington, and these generally smaller classes would affect the student/teacher ratio. This is not a reporting error, however. What it does mean is that states with more such students and classes may show a lower student/teacher ratio even though the actual class size in regular classes might be larger.

** Average daily attendance seldom reported in place of membership for students. Another possible discrepancy could come from some states underreporting the number of students by using average daily attendance or some other statistic. A review of more complete reports has shown an average daily attendance figure for each state which is appropriately lower than the membership figure used on the CCD.

The only exception to this is California, but the reason their average daily attendance figure is so close to the membership figure is the definition they use for absence. In California, the only time an "absence" is reported is when it is unexcused. Any excused absence, such as illness or a pre-authorized absence, is ignored in reporting average daily attendance. For this reason, California has an average per cent of attendance of 99.3

compared to most states which vary from 88% to 92%. This is done in California for funding reasons and does not affect the reporting for student/teacher ratios. It does, however, affect the expenditure per pupil figure since that is calculated by CES using the average daily attendance number.

ARE THE DATA COMPARABLE?

Recognizing that there are problems with definitions, research sophistication, and the design of the CCD data request, they appear quite limited in terms of the impact on the final calculation of student/teacher ratios. It would be my opinion at this time that, if all discrepancies could be cleared up, the spread from the lower quartile to the upper quartile student/teacher ratios might be reduced. It is my opinion further, however, that the change in ranking would be very limited. Even the most major discrepancy which may still be hiding somewhere would not bring us out of the highest quartile and out of a rank in the 40's.

There is more investigation that would be valuable including a thorough review of the CCSSO study on the reporting of staffing. In addition, there is sufficient data now to look at reasons for differences in student/teacher ratios among states. For example, nearly all of the lowest student/teacher ratio states have had major declines in enrollment while retaining teachers. A look at comparisons by regions, by size of states, and by other demographic data could help determine a realistic goal for the State of Washington and assist in achieving it.

K-12 STATEWIDE REPORTING SYSTEM
CLASS SIZE INFORMATION

REPORT TO THE LEGISLATURE

PART II

STUDENT/TEACHER RATIOS:

STATE COMPARISONS

by: Puget Sound Education Consortium

Student/Teacher Ratios
State Comparisons

Executive Summary

Legislative Evaluation and
Accountability Program Committee

Puget Sound Education Consortium
Ray Tobiason, Division Director
Neil Theobald, Research Assistant

STUDENT/TEACHER RATIOS

STATE COMPARISONS

Data reported nationally on student/teacher ratios in K-12 schools over the past three decades have consistently placed the State of Washington at 47th or higher in the average number of students per teacher.

These data have raised questions such as: "Are these reports reliable?" "Are the data comparable from state to state?"

In a recent study, "Student/Teacher Ratios: National Data Collection and Reporting," the report stated:

> *"While there are problems with definitions, research sophistication, and the design of some data requests, the problems seem quite limited in terms of the impact on the final calculation of student/teacher ratios. If all discrepancies could be cleared up, the spread from the lower quartile to the upper quartile of student/teacher ratios might be reduced. However, the change in ranking would likely be very limited."*

Given that these data are accurate, other questions become significant. These questions include:

> *What explanations exist for the differences in staffing levels from state to state? Why do states with comparable expenditures per student vary in student/teacher ratios? Do states have lower student/teacher ratios because they have specifically set that as a goal, or are there other factors that are unique to these states? Are there factors which are common to low student/teacher ratio states and others common to high student/teacher ratio states?*

Simply stated, why are some states in the range of 13 to 15 students/teacher and others over 20?

The purpose of this report is to explore these and other pertinent questions.

What Are The Findings Of This Study?

While the full report discusses the study's findings in greater detail, and the balance of this executive summary presents interesting details, the "bottom line" conclusions should be set out early.

Analysis of data for the 48 continental states in each of the last 13 school years shows a strong correlation between a state's student/teacher ratio and three explanatory variables.

- The most significant predictor of student/teacher ratio was real expenditure per student. A state spending $1,000 more per student, in 1986 dollars, than comparable states had 3.1 fewer students per teacher, on average.

- The second most significant predictor was real average teacher salary. A state paying its teachers a $1,000 higher average salary, in 1986 dollars, than comparable states had 0.6 more students per teacher, on average.

- The third significant predictor was the per cent of revenue raised locally. A state raising ten per cent more of its revenue locally than a comparable state had 0.3 fewer students per teacher, on average.

Analysis of **changes** in student/teacher ratios over a three year period shows:

- The strongest predictor of these changes is changes in enrollment. With other factors held constant, a ten per cent increase in enrollment leads to about a four per cent increase in student/teacher ratio, while a ten per cent decrease in enrollment typically leads to about a three per cent decrease in student/teacher ratio.

- A second predictor of student/teacher ratio changes is changes in real average teacher salary. The influence in this case is unidirectional. With other factors held constant, states that experience increasing real average teacher salaries also experience an upwards push to their student/teacher ratio. However, the direction of change in the student/teacher ratio for those states with decreasing real average teacher salaries is indeterminate.

A question often raised concerns the relationship between a state's expenditure per student and its student-teacher ratio. As pointed out above, higher expenditure per student is correlated, on average, with lower student-teacher ratios. As shown in ***Table A, Expenditure Per Student Adjusted for Student/Teacher Ratios, Teacher Salaries, and Support Services,*** Washington's expenditure per student in 1986-87 was only $10 below the national average; in terms of this result, why is Washington 48th in the nation in student-teacher ratio?

One way to approach this question is to adjust expenditure per student to account for differing staffing patterns across states. As shown in ***Table A***, if Washington had hired the 5,800 teachers needed to lower the state's 1986-87 student-teacher ratio to the national average, the state's expenditure per student would have increased $273 per student. If the average teacher salary had been at the national average, expenditures would have been $57 per student lower. Finally, according to the National Center for Education Statistics, which provides the best data available in a complex reporting area, if Washington's expenditure for support services* was at the nation average, the expenditure per student would have fallen by $121.

EXPENDITURE PER STUDENT ADJUSTED TO NATIONAL AVERAGE FOR STUDENT/TEACHER RATIO, TEACHER SALARIES, AND SUPPORT SERVICES

STATE	1986-87 EXP. PER STUDENT[1]	DIFF. FROM NATIONAL AVG.[2]	ST/TEACH. RATIO TO NATIONAL AVG.[3]	SUPPORT SVCS. TO NATIONAL AVG.[4]	TEACHER SALARIES TO NATIONAL AVG.[5]	ADJUSTED 86-87 EXP./STUDENT[6]	UNDEFINED DIFF. FROM NAT.AVG.[7]
CT	$ 5,150	+ $1,451	- $ 619	- $ 460	- $ 139	$ 3,932	+ $ 233
MA	4,562	+ 863	- 448	- 183	- 174	3,717	+ 18
NJ	5,395	+ 1,696	- 436	+ 39	- 134	4,864	+ 1,165
WI	4,024	+ 325	- 190	- 145	- 56	3,633	- 66
MO	3,086	- 613	- 176	+ 179	+ 187	3,276	- 423
MD	4,212	+ 513	- 85	- 181	- 123	3,823	+ 124
IL	3,781	+ 82	- 47	- 146	- 82	3,506	- 193
MN	3,963	+ 264	- 47	- 1	- 93	3,822	+ 123
OR	3,888	+ 189	+ 57	- 251	- 6	3,688	- 11
WA	3,689	- 10	+ 273	- 121	- 58	3,783	+ 84
CA	3,772	+ 73	+ 468	- 249	- 258	3,733	+ 34
NAT'L AVERAGE	3,699	-0-	-0-	-0-	-0-	3,699	-0-

[1]Total operating expenditure per student for 1986-87
[2]State expenditure per student minus national average expenditure per student
[3]Number of teachers for each state over/under national average multiplied by $36,842 divided by student membership
[4]Expenditure per student over/under national average for support services
[5]National average teacher salary minus state average teacher salary divided by student membership
[6]1986-87 expenditure per student adjusted by student/teacher ratio, support services and teacher salary adjustments
[7]Amount adjusted expenditures still differ from national average after applying adjustments

*Support services current expenditures include student support services (attendance, guidance, health, speech, psychological); staff support services (improvement of instruction, educational media, including librarians); general administration (board of education, central office); school administration (principal); business (fiscal services, purchasing, warehousing, printing); operation and maintenance of plant; student transportation services (excluding expenditures made to transport students at public expense); and central expenditures (research, information services, data processing).

When these adjustments are applied to the ten comparison states, expenditure differences narrow significantly. For example, in 1986-87 average expenditure in Massachusetts exceeded average expenditure in Washington by nearly $900 per student. However, when the student/teacher ratio, average teacher salary, and percentage of expenditures going to support activities are adjusted to the national average, the expenditure gap between these two states virtually disappears. Similar results occur in all but three states, each of which has significant differences in expenditure reporting.

While expenditure per student in Washington was slightly below the national average in 1986-87, efforts to lower the state's student-teacher ratio would have increased the state's expenditure to a level significantly above the national average. However, adjusting salary levels and support costs to national averages account for all but $84 of this difference. Other factors, such as numerous small districts and rapidly increasing enrollments, explain at least a portion of these higher costs.

However, expenditure per student is not the only determinant of student/teacher ratio. As noted above, changes in student enrollment, the per cent of revenues raised locally, and average teacher salaries are also strongly related to student/teacher ratio. Washington's relative standing on each of these variables also contributes to its poor national ranking.

The first of these explanatory variables, enrollment change, is likely to be the largest roadblock in any attempt to significantly improve Washington's student/teacher ratio position over the next decade. Washington's school age population is expected to increase 34% between 1985 and 2000, while this age group is expected to increase only 11% nationally. Data over the last 13 years suggest that states which experience enrollment growth fail to hire a sufficient number of additional teachers to maintain, much less improve, their student/teacher ratio.

Another major obstacle for Washington is its heavy reliance on state funding for K-12 revenue. In general, states that raise a larger percentage of their funds at the local level maintain lower student teacher ratios. While Washington raised only 19.8% of its revenue locally in 1986-87; the figure nationally was 45%.

Finally, Washington's 1986-87 average teacher salary of $28,746 was 3.7% above the national average. Higher teacher salaries are correlated with higher student/teacher ratio. However, the state's average teacher salary has fallen in constant dollars during the last decade. While relatively high teacher salaries help explain Washington's historically poor student/teacher ranking, they are much less of a factor in the state's current position.

If the state hopes to significantly reduce its student/teacher ratio, a commitment is needed to set state policy and educational priorities in that direction. In the 1986-87 school year, Washington school districts would have needed to employ 5803 additional teachers in order for the state's student/teacher ratio to match the national average. Using an arbitrary figure of $36,842 cost per teacher (including salary, benefits, supplies, etc., but no space), this translates into an expenditure of $416 million per biennium or approximately $273 per FTE student per year.

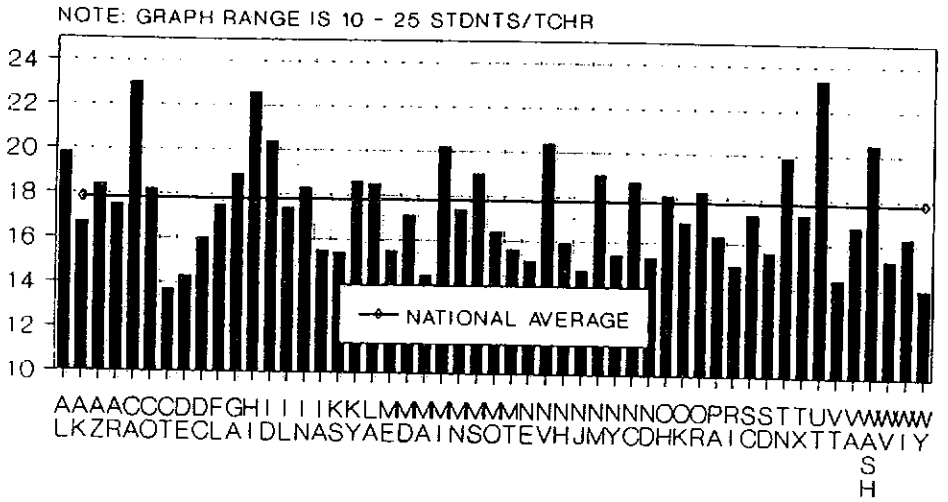
The major questions remaining to be answered are "if" and "how" the state will move to reduce student/teacher ratios. Considerable work is needed to explore these questions, as well as the costs, benefits, and alternatives involved.

In order to simplify the presentation of data, Washington will be compared to ten states: California, Connecticut, Illinois, Maryland, Massachusetts, Minnesota, Missouri, New Jersey, Oregon and Wisconsin. The states were selected to represent each quartile of the student/teacher ratio distribution in 1986-87. Within each quartile, states were selected with similar enrollment or number of teachers as Washington. The states are located in the Northeast, Midwest and West Coast regions.

Definitions are critical when seeking comparability of data and in discussing the relationship of numbers of students to numbers of teachers. A common misunderstanding in the staffing area is the interchangeable use of two terms which have quite different meanings: "class size" and "student/teacher ratio." Class size refers to the actual number of students with a teacher in a classroom while student/teacher ratio is the total number of students in an organizational unit divided by the total number of teachers. Due to such factors as preparation periods, small specialized classes, and the use of specialists, these two figures may be quite different. This study deals only with student/teacher ratios.

Washington currently ranks 48th in the reports of the two national data reporting organizations, the Center for Education Statistics (CES), a division of the U.S. Department of Education, and the National Education Association (NEA). ***Table 1, Student/Teacher Ratios, 1986,*** shows the ratio as reported by CES for all states and the District of Columbia.

STUDENT/TEACHER RATIOS
FALL, 1986



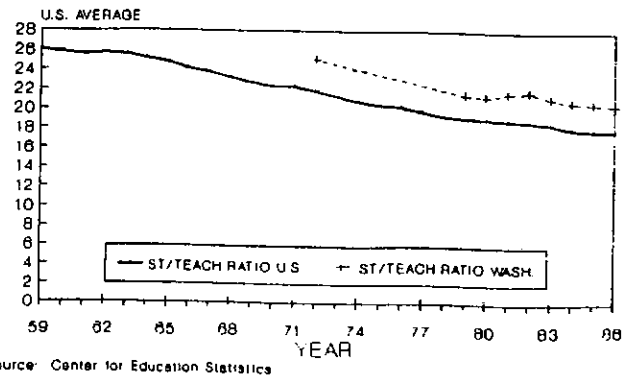
Source: Center for Education Statistics

TABLE 1

CES has been tabulating and reporting on student/teacher ratios since 1955. Since that time, reported national average student/teacher ratios have dropped from over 26 students/teacher to the 1986 ratio of 17.8 students/teacher.

As ***Table 2, Student/Teacher Ratios, 1959 Through 1986*** shows, the national ratio was 21.8 and Washington's ratio was 25.1 in 1972. By 1986, the national had dropped to 17.8, an 18.3% decline and the Washington ratio had fallen to 20.5, also an 18.3% decline. Washington's rank in 1972 was 49th. It improved to 48th in 1986. While Washington has significantly reduced its student/teacher ratio during this period, other states throughout the nation did so as well.

STUDENT/TEACHER RATIOS
1959 THROUGH 1986

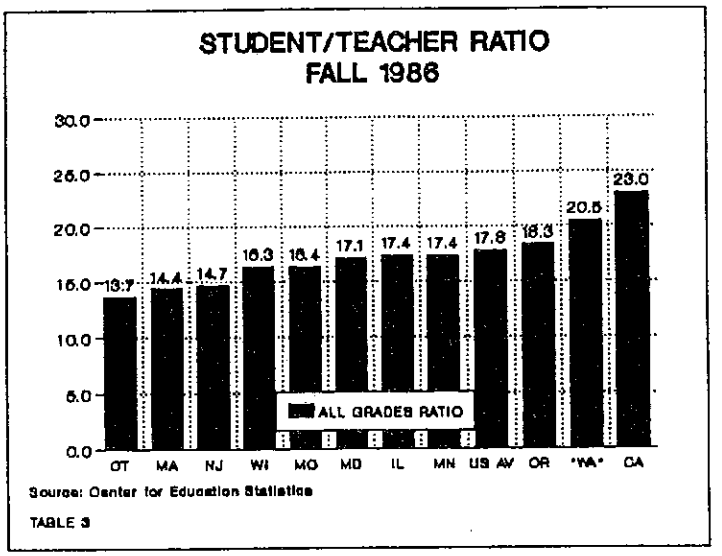


Source: Center for Education Statistics

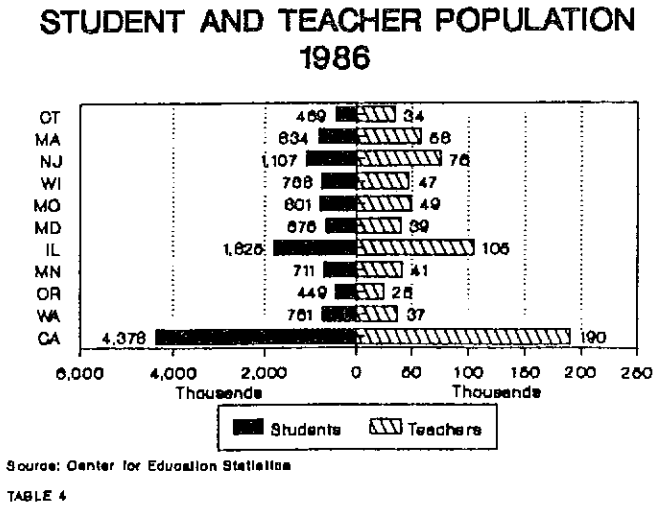
TABLE 2

Comparison States

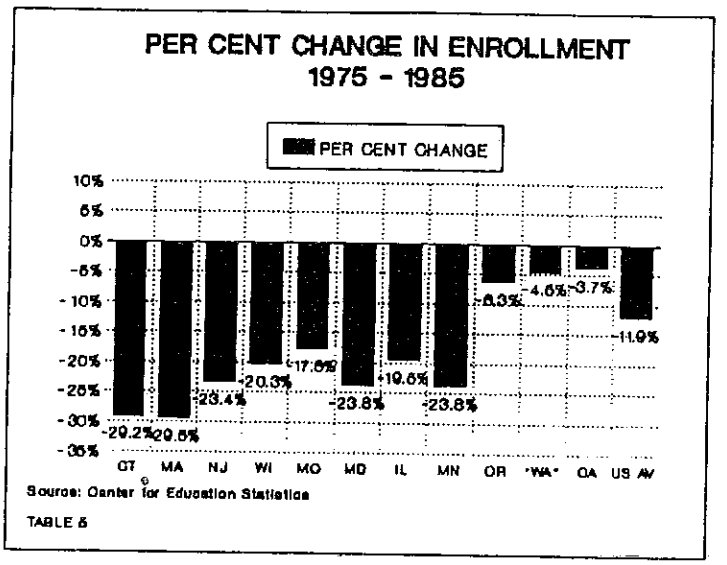
Table 3, Student/Teacher Ratio, Fall 1986 shows the 1986-87 ratios for the 11 comparison states.



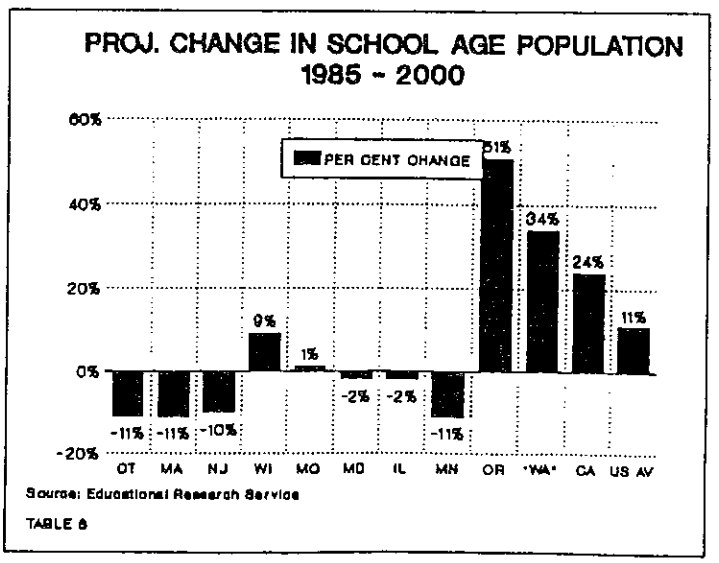
As ***Table 4, Student and Teacher Population,*** illustrates, while Maryland and Minnesota have fewer students than Washington, both have more teachers.



The comparison states have experienced significant differences in their growth rate as shown in ***Table 5, % Change in Enrollment, 1975-1985.*** California, Washington and Oregon are the only states that have experienced an enrollment decrease of less than ten per cent, while Connecticut and Massachusetts have each had decreases of more than 25%.
Given the results presented earlier, it is no surprise that Oregon, Washington and California, which have experienced minimal decreases in enrollments, have the highest student/teacher ratios of the comparison states. Connecticut and Massachusetts, with large decreases in enrollment, have the lowest student/teacher ratios of the comparison states.



These enrollment trends are expected to continue for the remainder of the century as shown in ***Table 6, Projected Change in School Age Population.*** High student/teacher ratio states, such as California, Washington and Oregon, face school age population increases ranging from 24 to 51 per cent. Low student/teacher ratio states, such as Connecticut, Massachusetts and New Jersey are expected to continue to face significant enrollment declines.



These and other tables in the full report show some of the likenesses and differences among the eleven states in the study. The emphasis, to this point, has been on the demographics of the population. Now we will look at the financial side related to education and review spending and other patterns.

Table 7, Expenditure Per Student, follows the same general relationship. Clearly, New Jersey and Connecticut have the highest expenditure, followed by Massachusetts. These are the three states of the study with the lowest student/teacher ratio.

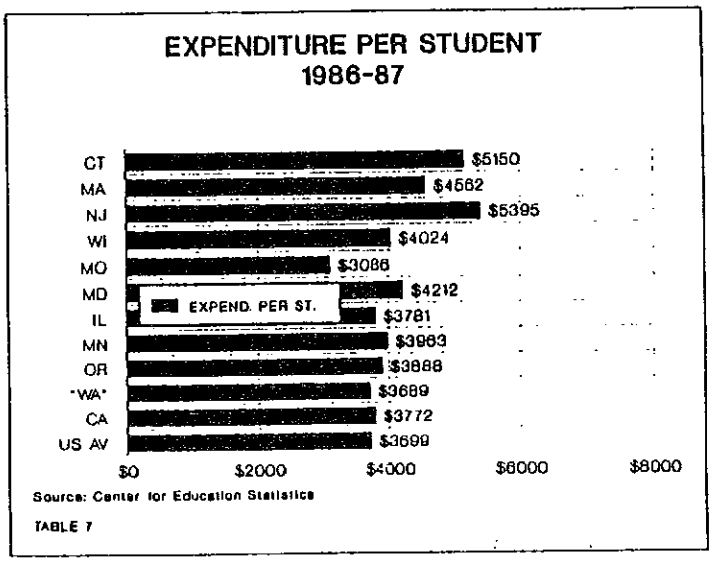
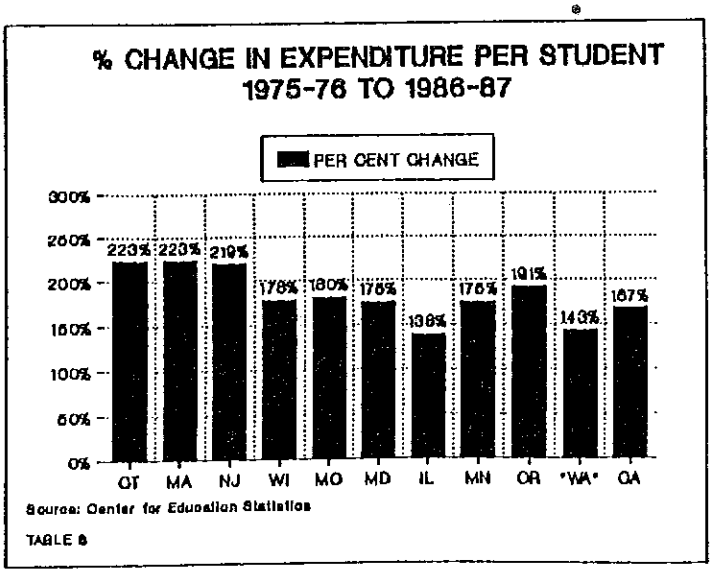


Table 8, % Change in Expenditure Per Student, 1975-76 to 1986-87, indicates a relative high increase in expenditures for Connecticut, Massachusetts, and New Jersey, the three states with the lowest student/teacher ratio, and the lowest increase in expenditures for Illinois, California and Washington, which tend toward higher student/teacher ratios.



Washington and California are about one-half as reliant on local sources for revenue as the third lowest state, Minnesota as shown in ***Table 9, Revenue % From Local Sources, 1986-87***. It is noteworthy that these are the two states with the highest student/teacher ratio among the eleven selected states. While Washington school districts depend on local dollars for less than 20 per cent of their revenue, the national average is nearly 45 per cent.

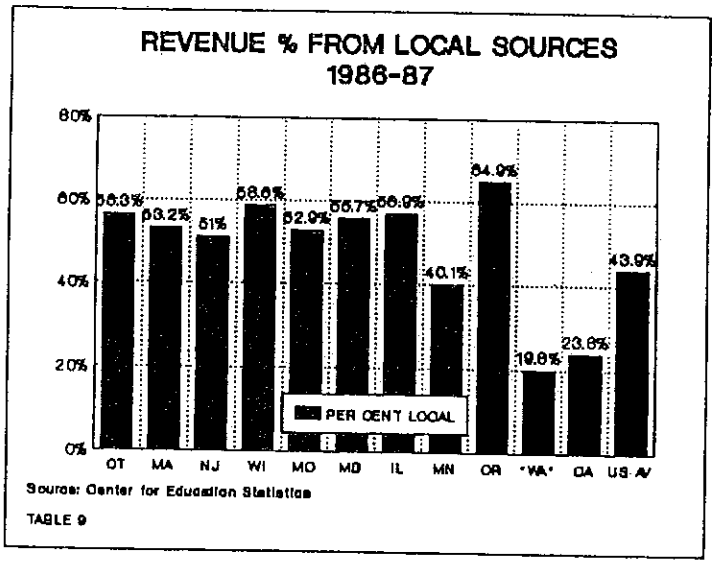


Table 10, Average Teacher Salaries, is taken from estimates published by the National Education Association. Washington, at $28,746 for 1986-87 is 3.7% above the national average of $27,711 for 1986-87.

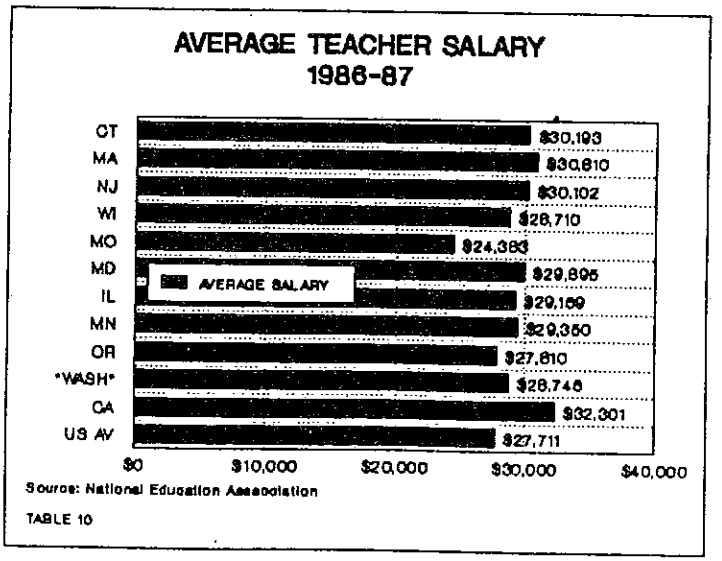
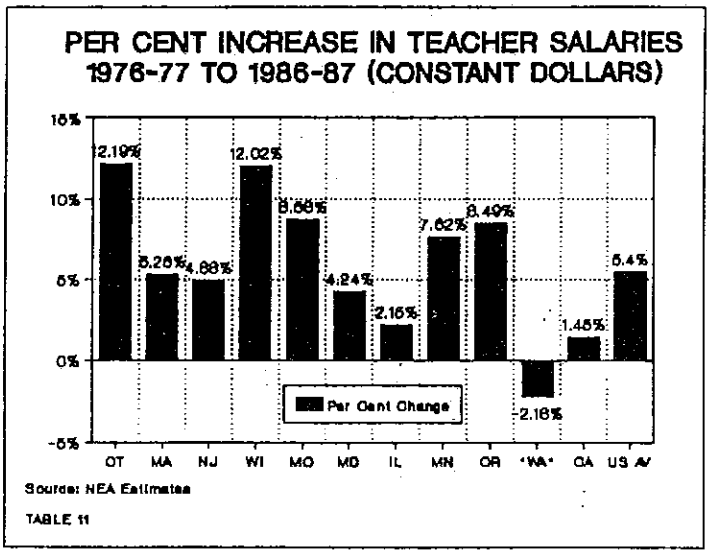


Table 11, Per Cent Increase in Teacher Salaries, 1976-77 to 1986-87 (Constant Dollars), shows Washington as the only state having a negative change in average teacher salaries, (constant dollars). The question often raised when comparing salary figures relates to the comparability of reporting. For example, do the figures include all forms of salary distribution? The percentages shown in the table are based on the best data available for all the states over a given period of time.



What Are The Funding Provisions in the Comparison States?

Washington state's finance formula is unique to this sample. A more common method is the use of a "guaranteed tax base." Seven of the 11 states use this approach in funding the state's responsibility for school finance. The Washington State approach of funding staffing ratios makes it necessary to appropriate funds for individual programs for bilingual, compensatory and gifted education. Other states add a weighting to their formula for programs such as these and send out funds in a lump sum. Washington is the only state that attempts to fund fully a basic system of education.

An extensive discussion of funding is included in the full report. It is noteworthy that, with the exception of Oregon, those districts with a greater percentage of funds coming from the local level had the lower student/teacher ratios.

What are the Current Trends and High Priorities in the Comparison States?

In conversations with representatives of state education agencies, teacher and/or administrative groups in the comparison states, the following generalizations appeared. In summary, education is viewed as a potent political force, highest with good economic conditions and during those times when an issue can coalesce the various education groups. Education generally receives a high legislative priority when compared against other state programs.

Funding and formula revision now appear to be the major concerns. Tax reform is key in at least three states and two states have initiatives on the ballot to guarantee additional educational funds.

Approximately half of the states, primarily on the east coast, have made significant financial commitments to education over the past three years. West coast states appear to be in a financial holding pattern.

Class size is not a legislative issue among 9 of the 10 other states. It is, however, a significant local district issue. It is bargained in 7 of those states.

The cost of employing additional staff is the major disincentive toward improving staffing ratios. It appears that most states have opted to increase teachers salaries, especially at the entry level, in order to attract and retain personnel rather than to improve staffing levels.

Conclusion

The student/teacher ratio rank for K-12 schools in the state of Washington is 48th out of 51 (including the District of Columbia), as reported from data gathered from each state by the Center for Education Statistics, a division of the U. S. Department of Education. Only Hawaii, California and Utah have a larger number of students per teacher. The range is from 13.7 in Connecticut to 23.4 in Utah, with Washington at 20.5.

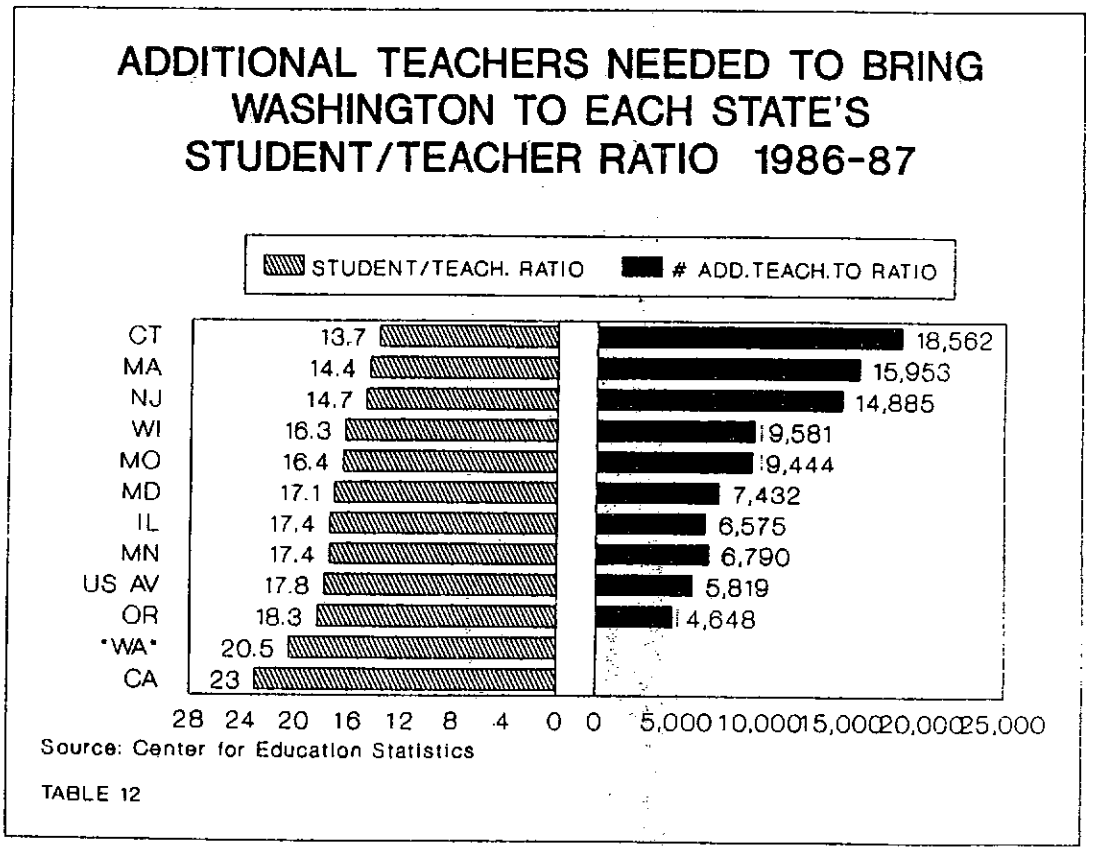
The national average student/teacher ratio has declined over the years, dropping from 26.0 in 1959, to 22.4 in 1969, 19.1 in 1979, and 17.8 in 1986. The ratio in the state of Washington has also dropped, but the rank has not changed significantly, being 47th, 48th or 49th over the years.

Of the numerous possible factors considered, no clear **single** factor emerged which could be identified as the reason for a state's student/teacher ratio. Consideration of multiple relationships was achieved via multiple regression work. Looking at any one of the years from 1975-76 to 1986-87, the most significant predictor (highest correlation) was real expenditure per student, the second most significant was real average teacher salary, and the third was the per cent of revenue raised locally.

The strongest predictor of changes in student/teacher ratios is enrollment changes. The other significant predictor is changes in real average teacher salary, although this influence is unidirectional. With other factors held constant, states that experienced increasing real average teacher salaries also experienced an upwards push to their student/teacher ratio, but there is no similar determination regarding states with decreasing real average teacher salaries.

Given the strong relationship with student enrollment, the state of Washington faces significant increasing difficulty, not only in improving its student/teacher ratio position, but even in maintaining it in light of projected changes in enrollment. Among the 11 selected states in this study, only Oregon, another high student/teacher ratio state, exceeds Washington in projected growth in school age population by the year 2000 Many others are declining, some as much as 11%.

The increase in the number of teachers in the state of Washington over the number employed in 1986 in order to match the student/teacher ratio for each of the comparison states is shown in ***Table 12, Additional Teachers Needed to Bring Washington to each State's Student/Teacher Ratio, 1986-87***. Making significant progress in reducing the student/teacher ratio as compared to other states will present a major challenge to decision makers in Washington.



PART III

K-12 STATEWIDE REPORTING SYSTEM:

CLASS SIZE INFORMATION

by: Legislative Evaluation and
Accountability Program Committee

L E A P
COMMITTEE

K-12 STATEWIDE REPORTING SYSTEM

CLASS SIZE INFORMATION

REPORT TO THE LEGISLATURE

December 1, 1988

K-12 STATEWIDE REPORTING SYSTEM

CLASS SIZE INFORMATION

TABLE OF CONTENTS

SECTION		PAGE
I	Background	1
II	Study Methodology	2
III	Findings & Recommendations	4

APPENDICES

A	Class size forms, instructions and request letter
B	Correspondence with Education Committees
C	Sample reports of findings, statistical definitions and sample PC menus.

BACKGROUND

The legislature placed a requirement in the current appropriations act directing the LEAP Committee to..." conduct a study of the common school statewide data reporting system, including information on class size in kindergarten through twelfth grade and prepare a report to the legislature by December 1, 1988, regarding its findings and recommendations." Discussions with the Education Committee chairmen and other members confirmed that the primary interest in directing this study was to gather information on class size rather than to study K-12 reporting systems in a more general sense. The Legislative Budget Committee is completing a more comprehensive study of common school data collection and reporting. That study will be reported to the legislature at the beginning of the 1989 session.

This study is intended to provide policy makers with information on actual class size. Current reporting systems collect detailed information on students and on classroom teachers. However, these systems do not collect information on the number of students in each classroom. Student teacher ratios are derived by dividing the total number of students by the total number of classroom teachers. This calculation yields a result different from actual class size because of the influence of itinerant teachers, teacher preparation periods and other factors. This study sought information from all districts on actual class size by teacher in the elementary grades and by teacher by period at the secondary level. The forms sent to individual districts along with instructions and a request letter are included as Appendix A to this report.

STUDY METHODOLOGY

The study approach was developed in consultation with the Office of the Superintendent of Public Instruction (OSPI), the Washington State School Directors Association (WSSDA), the Washington Association of School Administrators (WASA) and the Washington Education Association (WEA). We also received considerable help from other groups including the Association of Washington School Principals (AWSP) and the Washington Association of School Personnel Administrators (WASPA). We also visited a number of local school districts before designing a sample set of reporting forms and instructions. Once the sample forms and instructions were finalized, we asked 9 local districts to complete the forms and keep track of time required and questions arising from tackling the forms.

This process led to a finished set of forms which were presented to the LEAP Committee for review at the Committee's December, 1987 meeting. At the elementary level districts were asked to report for each regular education classroom: teacher name, grade level and total students. At the secondary level districts were asked to report for each period: teacher name, class title, class code and total students. Districts were asked to exclude self-contained handicapped education classes and self-contained transitional bilingual classes at the elementary level. Secondary classes excluded handicapped education, transitional bilingual and traffic safety.

Several Committee members expressed concern over the limited scope of information requested e.g., no information on use of aides, student pullouts or number of students being mainstreamed. These concerns led to a request from the LEAP Co-chairmen to the House and Senate Education Committee Chairs for help in defining study scope. The response from the Education Committees (see Appendix B) provided the framework for the study. The scope of information requested from all districts remained unchanged. That information was to be supplemented by detailed data collection gathered through on-site visits to selected districts. This work was designed and carried out by the Education Committee staffs.

Study Methodology
(continued)

The actual collection and compilation of the data were accomplished through a major effort by local school district personnel, the Washington School Information Processing Co-op (WSIPC) and the Information Resources Management division within OSPI. Local district personnel filled out the forms and compiled them at the district level.

WSIPC provided a network for transmitting class size data and also developed on-line data entry screen input capability for use by districts in the Co-op. OSPI developed a common tape format for all reported data and also keyed in data submitted by districts on paper. The final response rate in terms of usable data worked out to be 80% of total K-12 student population. That level is remarkable given the fact that this is the first time districts have been asked to provide actual class size data on a global scale.

FINDINGS AND RECOMMENDATIONS

Class size information was collected at the individual class level within building within district. Classes were identified by grade for elementary levels and by subject matter at the secondary level. We developed a data base to store this data and to facilitate reporting. The database contains aggregations by grade level, by subject matter, by building, by district, by size of district and at the total state level. We've also moved data from this detailed database to a summary reporting system. This summary system is currently accessible from PC workstations at the LEAP office. More detailed information is accessible from the database.

The findings in this report are drawn from the summary reporting system. They represent only a sample of the type of information available. Statistical attributes are included with each report displaying mean class size, median class size, standard deviation, and standard error. The mode for each report is indicated by the tallest vertical bar.

Findings for major aggregations are illustrated in the table on the following page.

K-12 CLASS SIZE REPORT
TABLE OF FINDINGS

Summary Level	Class/Subject	#Reporting	Mean	Mode	Standard Deviation
(1) Total State	All	72,589(2)	23	26	8.1
Total State	All Elementary	12,688	25	26	4.9
Total State	All Secondary	59,673	23	27	8.5
(1) Total State	K-3	7,993	24	25	4.8
Total State	4-6	4,695	26	27	5.0
Total State	English	10,536	23	27	6.8
(1) Total State	Mathematics	8,355	23	25	7.1
Total State	Science	5,925	24	27	6.4
Total State	Vocational Education	8,970	19	23	8.2
20,000 & over	All Elementary	2,018	23	25	4.3
(1) 10,000 - 19,999	All Elementary	4,133	25	26	4.9
5,000 - 9,999	All Elementary	2,111	26	26	3.9
3,000 - 4,999	All Elementary	1,406	25	26	4.9
2,000 - 2,999	All Elementary	836	26	27	3.4
1,000 - 1,199	All Elementary	1,092	25	26	4.2
Under 1,000	All Elementary	1,092	22	22	8.0
Local School Dist	All	1,317	23	26	8.9
Local School Dist	All Elementary	207	25	23	3.5
(1)Local School Dist	All Secondary	1,110	22	30	9.5
Local School Dist	K-3	117	24	23	3.5
Local School Dist	4-6	90	27	26	3.1
Local School Dist	English	215	20	30	10.0
Local School Dist	Mathematics	164	21	26	8.8
Local School Dist	Science	137	25	29	6.3
Local School Dist	Vocational Education	207	18	19	7.4

(1) Report showing this information included in Appendix C

(2) Total includes 228 classes not identified as Elementary or Secondary

In addition to those reports noted on the preceding table, Appendix C includes a glossary of statistical terms used in the table and on the reports. Appendix C also contains sample menus illustrating how to select various class size reports at the total state level and by grouping of districts according to student population.

The proviso in the appropriations act directing this study also called for recommendations concerning class size reporting. The major recommendations in this area should be developed following legislative review and deliberation. However, one recommendation should be made regarding future collection efforts. OSPI, WSIPC and local district personnel must be involved early on. The amount of work required is considerable. If the product of that work (reports, detail data, etc) is designed in a manner that meets OSPI and local district needs, routine reporting of class size data can be readily accomplished.

APPENDIX A

CLASS SIZE FORMS, INSTRUCTIONS

AND REQUEST LETTER

STATE OF WASHINGTON
LEGISLATIVE EVALUATION & ACCOUNTABILITY PROGRAM COMMITTEE

April 26, 1988

TO: Educational Service District Superintendents
Chief School District Administrators
Assistant Superintendents for Business and/or
Business Managers

FROM: Bob Fitchitt, Administrator

SUBJECT: LEAP CLASS SIZE STUDY - 1987-88 SCHOOL YEAR

PURPOSE

The 1987 Legislature directed the Legislative Evaluation and Accountability Program (LEAP) Committee to:

> "...conduct a study of the common school statewide data reporting systems, including information on class size in kindergarten through twelfth grade."

The Office of Superintendent of Public Instruction (OSPI) has cooperated with LEAP in the planning stages and has agreed to coordinate the collection of the required data.

This is a request that school districts report class size information for the current school year as explained below and on the attachments.

REPORTING PROCEDURES

Districts can report class size information using one of three separate procedures:

(1) Online Data Entry Program
(2) Magnetic Tape
(3) Paper

Attached are the forms, including instructions, for completing the Elementary School Class Size information (buff attachment) and the Secondary School Class Size information (canary attachment).

3309 Capitol Boulevard • QD-11
Olympia, Washington 98504
(206) 753-5911

The instructions describing the data elements and their definitions are the same whether you choose online data entry, magnetic tape, or paper to submit your data.

Districts reporting using the online data entry program can gain access to that program on their local VAX through the LEGIS account. Interested districts should contact their data center coordinator for more information.

Those districts reporting on magnetic tape should contact OSPI for tape layouts and specifications.

For those districts using paper forms, upon request OSPI will preprint blank forms with the elementary and secondary teacher names. The prelist will include building name and number reported on Form S-275, Certificated Personnel Report, as of October 1, 1987. If a teacher no longer is employed by the district, draw a line through his/her name on the prelisted form. If you have any teachers new to the district since October 1, please add their names and corresponding class enrollments to the prelisted form. If necessary, attach additional pages. If you choose to submit data on paper but not on prelisted forms mentioned above, use the attached forms as masters to reproduce sufficient copies to make your reports.

To minimize the administrative burden in making this report, use the most current class schedule/enrollment data available in the district. Reports should be returned on or before May 20 to:

Office of Superintendent of Public Instruction
ATTENTION: Ed Strozyk, Manager, Information Services
Old Capitol Building
MAIL STOP: FG-11
Olympia, Washington 98504

LEAP Memorandum
April 26, 1988
Page three

QUESTIONS

Questions dealing with definitions and instructions about data elements on the forms should be directed to Robert M. Schley, Director, School Fiscal Services, OSPI, at SCAN 234-1717 or (206) 753-1717. Questions regarding technical submission of forms and data should be directed to Ed Strozyk, Manager, Information Services, OSPI, at SCAN 234-1700 or (206) 753-1700.

BF:ts

Attachments

ELEMENTARY SCHOOL CLASS SIZE INFORMATION

Instructions for Completing Form

Please use current class list information.

Indicate a district contact person and telephone number; the school district name; and the school building name.

Supply the following information for each regular education classroom teacher who has primary responsibility for students. (*)

COLUMN	INSTRUCTION
Teacher Name	Only last name required.
Grade Level	Grade taught. (A) List highest grade for combination classes. Write 4 for a class which contains both 3rd and 4th graders. (B) List each kindergarten class separately. (C) Exclude preschool.
Total Students (Total No. of Students)	Number of students for which the teacher is responsible. (A) Count each student as one regardless of time mainstreamed. (B) Split number of students between teachers for classes which are team taught.
Comments	Use this column to record any comments.

(*) Do <u>not</u> report on the following **self-contained classes**:

Handicapped Education
Transitional Bilingual (ESL)

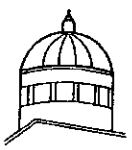
ELEMENTARY SCHOOL CLASS SIZE INFORMATION

Date: _____

Contact Person: _____ District Name: _____

Phone: _____ Building Name: _____

Teacher Name	Grade Level	Total No. of Students	Comments Use reverse side for additional comments.



Legislative Evaluation and
Accountability Program Committee

SECONDARY SCHOOL CLASS SIZE INFORMATION

(Middle, Junior, and Senior High Schools)

Instructions for Completing Form

Please use current class list information.

Indicate a district contact person and telephone number; the school district name; and the school building name.

Supply the following information for each teacher who has primary responsibility for students. (*) Specify the information by period.

COLUMN	INSTRUCTION
Teacher Name	Only last name required.
Class Title	Specify title used by school district.
Class Code	Write the applicable class code from the attached list, e.g., write 4 for an Algebra I class. If multiple classes are taught during one period, write the class code which applies to the greatest number of students and include the total number of students assigned during the period.
Total Students (Total Stdnt)	Number of assigned students for which the teacher is responsible. Split number of students between teachers for classes which are team taught.

(*) **Do not** report on the following classes:

Handicapped Education
Traffic Safety
Transitional Bilingual (ESL)
Learning Assistance (Remediation)
Highly Capable (Gifted)
Chapter I

Also **exclude** skill centers, continuation schools, off-campus schools, and classes which are held before or after school.

SECONDARY SCHOOL CLASS SIZE INFORMATION

DATE	CONTACT PERSON	PHONE
DISTRICT NAME	BUILDING NAME	

TEACHER NAME

PERIOD	CLASS TITLE	CLASS CODE*	TOTAL STUDENTS	COMMENTS
1				
2				
3				
4				
5				
6				
7				
8				

Use reverse side of form for any comments.
***Write the applicable class code from the LEAP Secondary Class Code List.**

Legislative Evaluation and
Accountability Program Committee

SECONDARY CLASS CODE LIST

(Middle, Junior and Senior High Schools)

Class Code	Description
1	Block/Core
2	Language Arts/English/Reading, etc.
3	Foreign Language
4	Mathematics
5	Social Studies
6	Science
7	Vocational Education/Occupational Education (Work Skills) Including: Industrial Arts Home and Family Life Business and Office Education Distributive Education Agriculture Education Health Occupations Education Vocational Education Trade and Industrial Education Technical Education and Career Education Diversified Occupations
8	Physical Education/Health
9	Music
10	Other Fine and Performing Arts: Drama, Art, etc.
11	Planning/Preparation
12	Other

APPENDIX B

CORRESPONDENCE WITH EDUCATION COMMITTEES

STATE OF WASHINGTON
LEGISLATIVE EVALUATION & ACCOUNTABILITY PROGRAM COMMITTEE

January 26, 1988

Senator Cliff Bailey, Chair
Senate Education Committee
109-B Institutions Building
Olympia, WA 98504

Representative Kim Peery, Chair
House Education Committee
425 House Office Building
Olympia, WA 98504

Dear Cliff and Kim:

The Legislative Evaluation and Accountability Program (LEAP) Committee's 1987-89 budget appropriation included the following language:

> "The Committee shall conduct a study of the common school statewide data reporting systems, including information on class size in kindergarten through twelfth grade."

We have discussed the scope of the class size project with SPI, local school officials, representatives of professional associations, and in numerous Committee meetings. We are finding the selection of data elements to be a difficult charge.

Collecting and compiling class size data will entail considerable effort on the part of local districts, ESDs and SPI as well as on the part of LEAP. The number and nature of data elements required will determine level and length of effort. This effort will be worthwhile if the information collected is useful in formulating education policy.

3309 Capitol Boulevard • QD-11
Olympia, Washington 98504
(206) 753-5911

Since the Education Committees are in the business of formulating education policy, we are requesting your assistance. If your Committees can define the class size data elements pertinent to educational policy at the state level, we will work with you in collecting, compiling, transmitting and reporting the data. Also, we may be able to help quantify the time and staff resources necessary to collect various class size data elements. We plan to work with SPI and WSIPC in converting this first collection into a recurring process.

We are currently working with the Puget Sound Education Consortium to better understand the national class size comparisons reported by the Center for Education Statistics in the Department of Education. We expect to have a first phase report completed by the end of February, which we will share with you.

We recognize the considerable interest in having class size information available. However, the divergence of opinion as to which data elements are needed led us to request your help. We look forward to working with you to develop useful and credible class size information.

Cordially Yours,

Emilio Cantu

Senator Emilio Cantu
Co-Chair

Ken Madsen

Senator Ken Madsen
Co-Chair

EC:KM:jb

Washington State Legislature

Olympia

March 4, 1988

Senator Emilio Cantu
Co-Chair, LEAP Committee
204 Institutions Building
Olympia, Washington

Senator Ken Madsen
Co-Chair, LEAP Committee
436 Cherberg Building
Olympia, Washington

Dear Senator Cantu and Madsen;

As Chairs of the House and Senate Education Committees, we have reviewed the issues concerning the appropriate way to conduct the study of class size. We wish to make the following recommendation on the scope and conduct of this study.

1. LEAP Study of Class Size - LEAP shall conduct the basic class size study it proposed at the December 17, 1988 meeting. LEAP should allow WSPIC to utilize the SPI reporting network in collecting the data. This segment of the study should be completed before the end of the current school year.

2. National Class Size Comparison Data - The National class size component, which is currently assigned to Puget Sound Education Consortium and Dr. Ray Tobiason, should be completed.

3. Classroom Complexity Study - Various members have expressed an interest in developing information on factors such as use of aides, student pullout, mainstreaming, and class size by subject. The initial suggestion was to collect this information on a statewide basis. Without some idea of how things are structured in the real world, it is virtually impossible to develop an effective questionnaire to evaluate these factors. Consequently, it is our feeling that a desk audit approach should be used to develop a model of what is actually occurring in buildings.

The desk audit pilot program would be conducted on an hourly or period basis in one elementary school, one junior high school, one middle school, and one high

school for a one week period. At each reporting interval the desk auditor would note the following information:

a. Number of teachers in the room
b. Number of students present, assigned, and absent
c. Class subject
d. Aides and/or volunteers including number and work assignment
e. Number of students pulled from class and purpose of pullout instruction
f. Number of students being mainstreamed and if the student is accompanied by support staff

With this information we can develop a model and determine whether or not there is sufficient consistency and value to warrant the development of a statewide questionnaire on these factors. It will also show the amount of data which would be generated. The desk audit would be performed by a combination of Education Committee staff, volunteers and possibly some LEAP staff. We would expect the desk audit to take place in the second week of October with the final report being made available by December 31, 1988.

Some direction and assistance in conducting the desk audit may be required from LEAP staff or by consulting with an individual experienced in developing coding procedures, use of personal computers in developing the data base and analysis of the data.

We believe this suggested three pronged format assures that the specialized questions addressed in the desk audit do not overwhelm what must be the primary focus of the report - basic class size information and information on national class size reporting. We believe this is the most sensible approach to developing a true picture of what is happening in our schools.

Sincerely yours,

Representative Kim Peery
House Education Committee

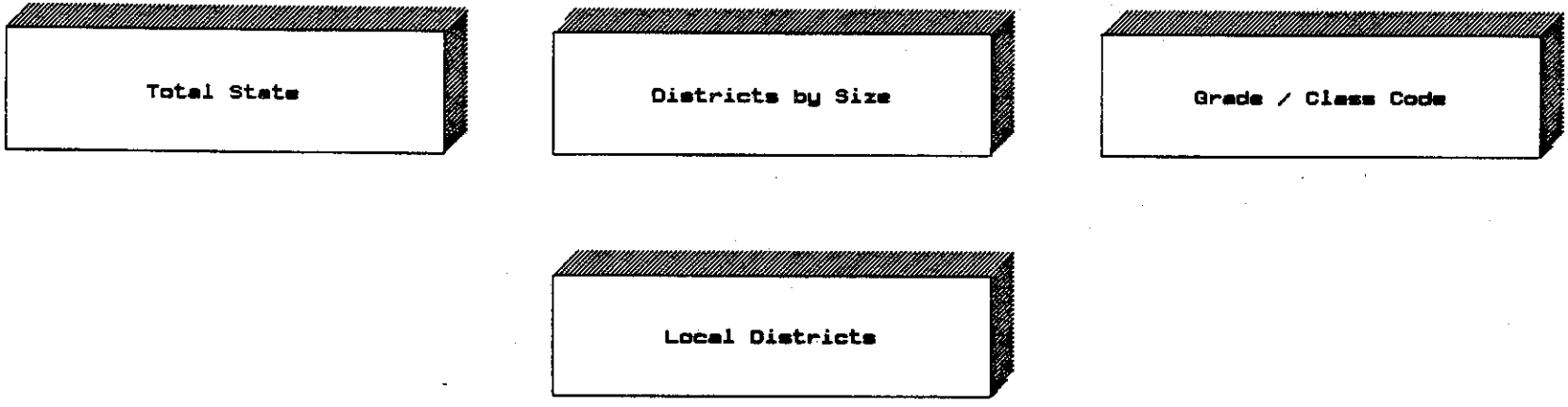
Senator Cliff Bailey
Senate Education Committee

APPENDIX C

SAMPLE REPORTS OF FINDINGS, STATISTICAL DEFINITIONS

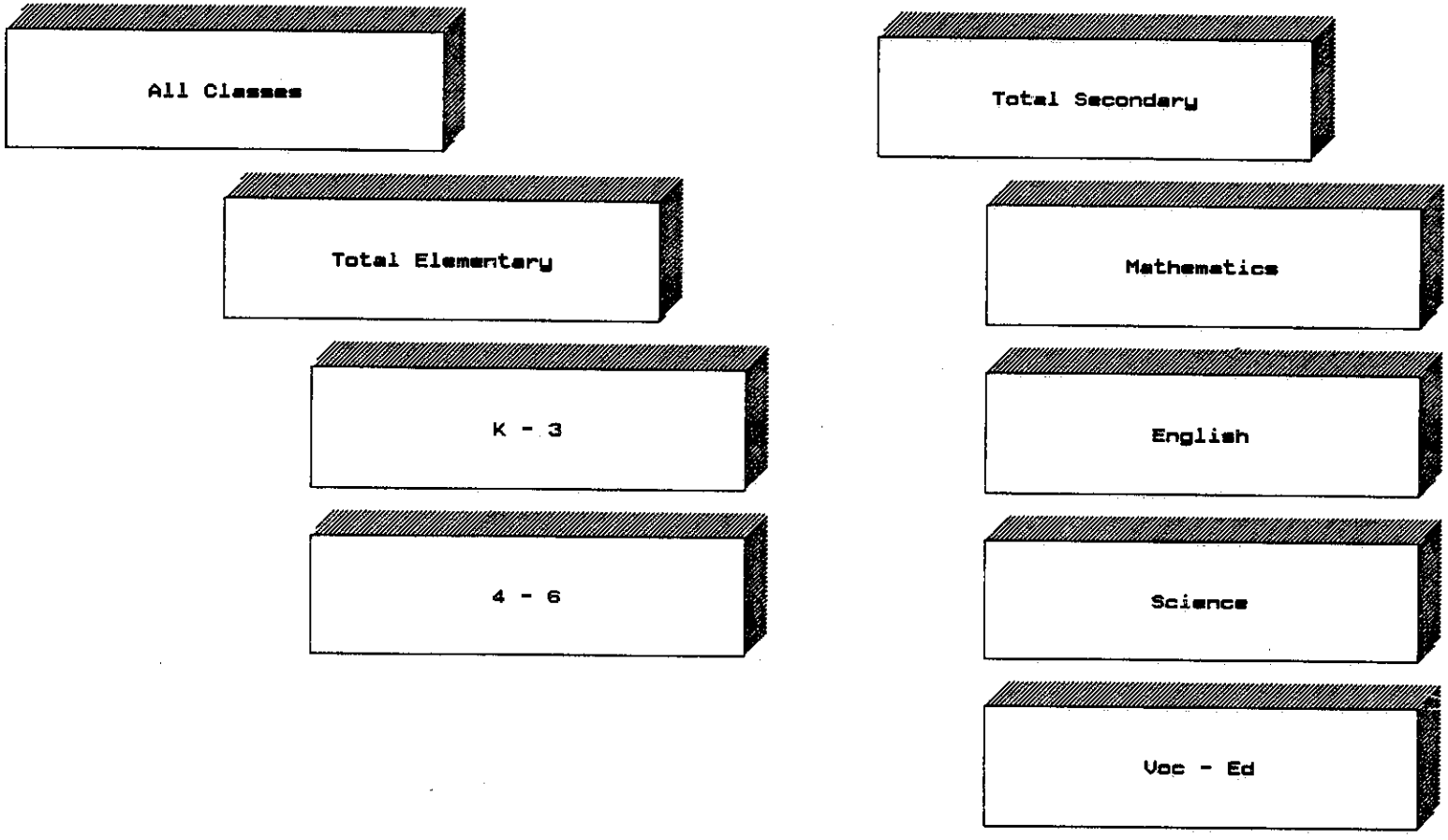
AND SAMPLE PC MENUS

LEAP K-12 Class Size Study



LEAP K-12 Class Size Study

Total State

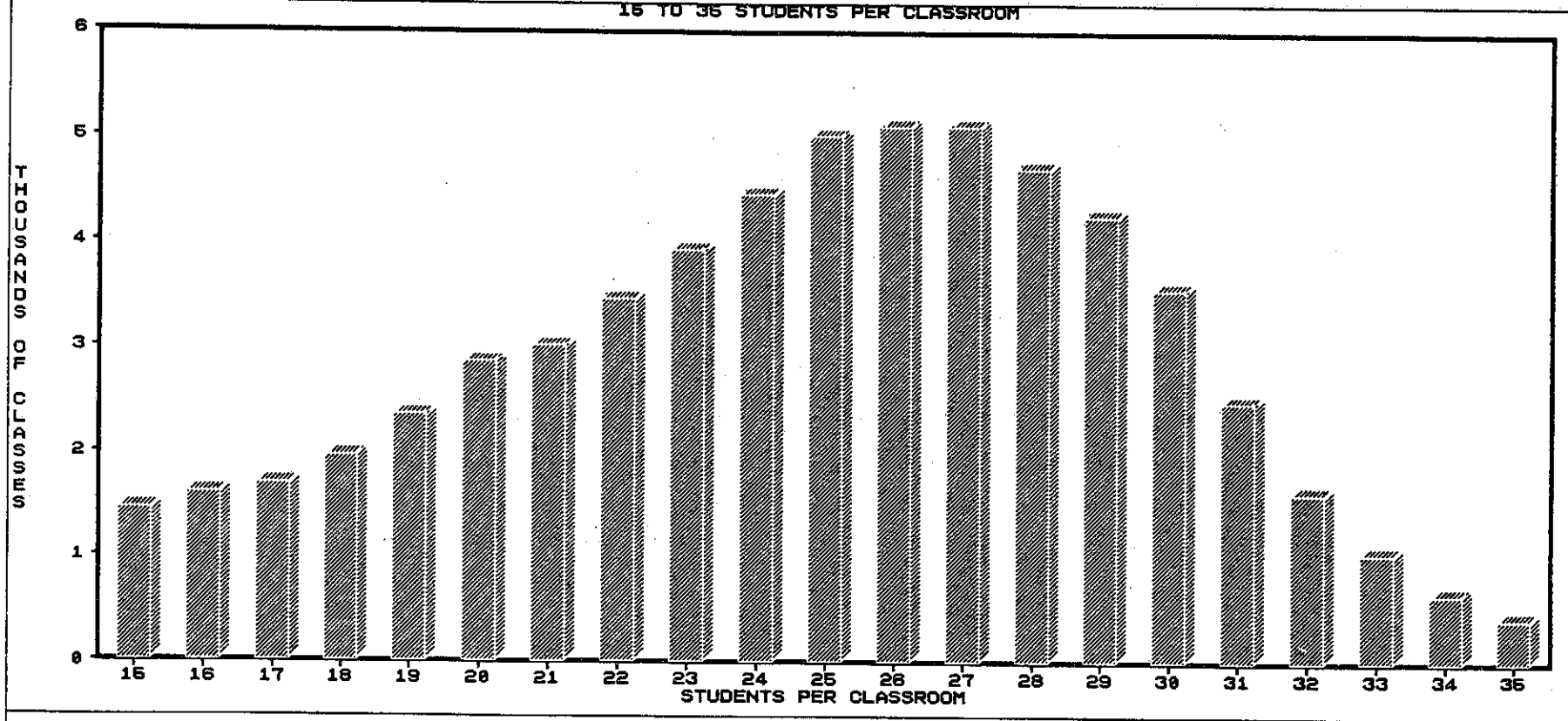


CLASSES REPORTED 72589

LEAP K-12 CLASS SIZE ANALYSIS 1987-88
WASHINGTON STATE TOTAL
ALL CLASSES
(PRELIMINARY DATA *)

MENU

MEAN = 23 | MEDIAN = 25 | STANDARD DEVIATION = 8.1 | STANDARD ERROR = 0.03



* WASHINGTON STATE TOTAL REPRESENTS APPROXIMATELY 1100 BUILDINGS REPORTING FROM 228 DISTRICTS IN 38 COUNTIES OR 80% OF THE STUDENT POPULATION

1-20 Students/class | 20-40 Students/class | 40-60+ Students/class

CLASSES REPORTED
7993

LEAP K-12 CLASS SIZE ANALYSIS 1987-88
WASHINGTON STATE TOTAL
K THRU THIRD
(PRELIMINARY DATA *)

MENU

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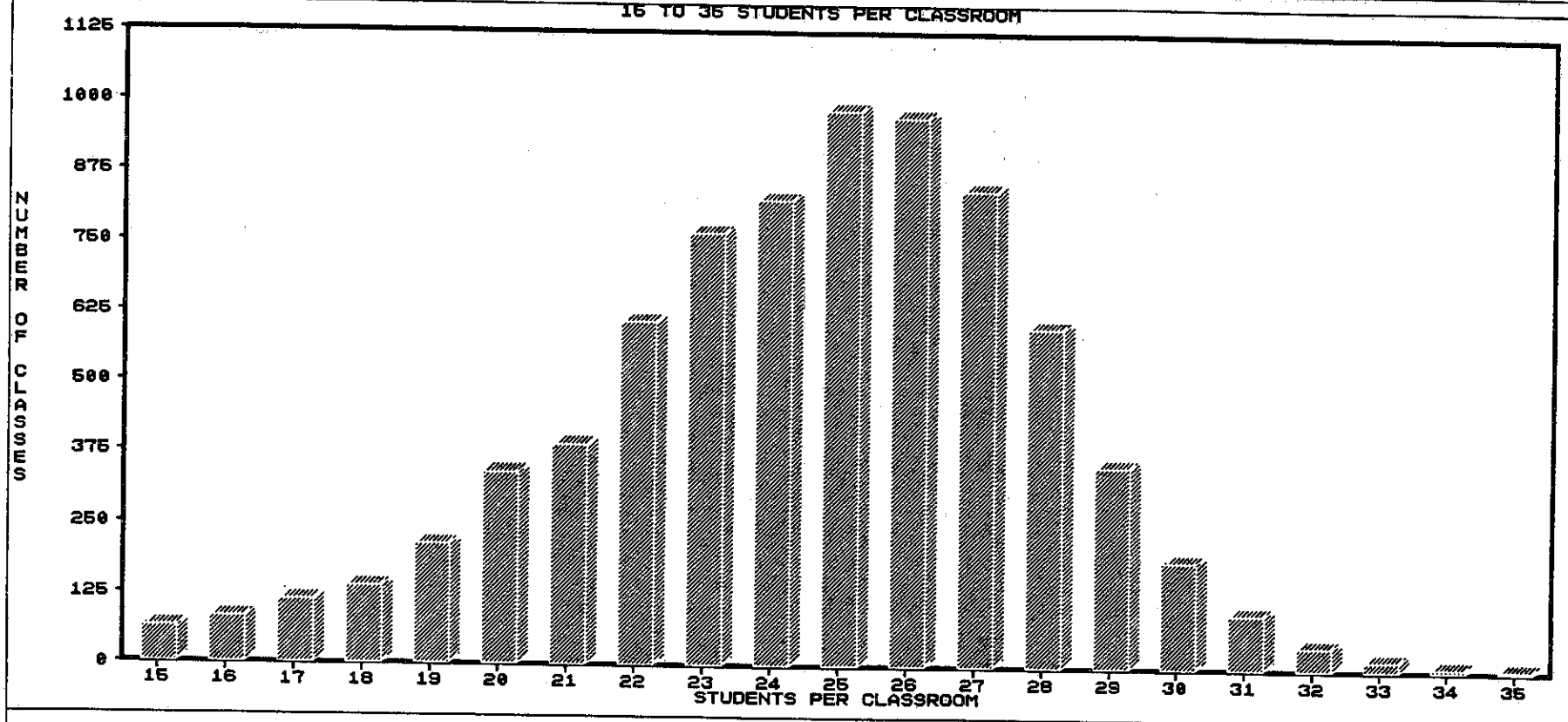

* WASHINGTON STATE TOTAL REPRESENTS APPROXIMATELY 1100 BUILDINGS REPORTING FROM 229 DISTRICTS IN 38 COUNTIES OR 80% OF THE STUDENT POPULATION

1-20 Students/class | 20-40 Students/class | 40-60+ Students/class

CLASSES REPORTED 8365

LEAP K-12 CLASS SIZE ANALYSIS 1987-88
WASHINGTON STATE TOTAL
MATHEMATICS
(PRELIMINARY DATA *)

MENU

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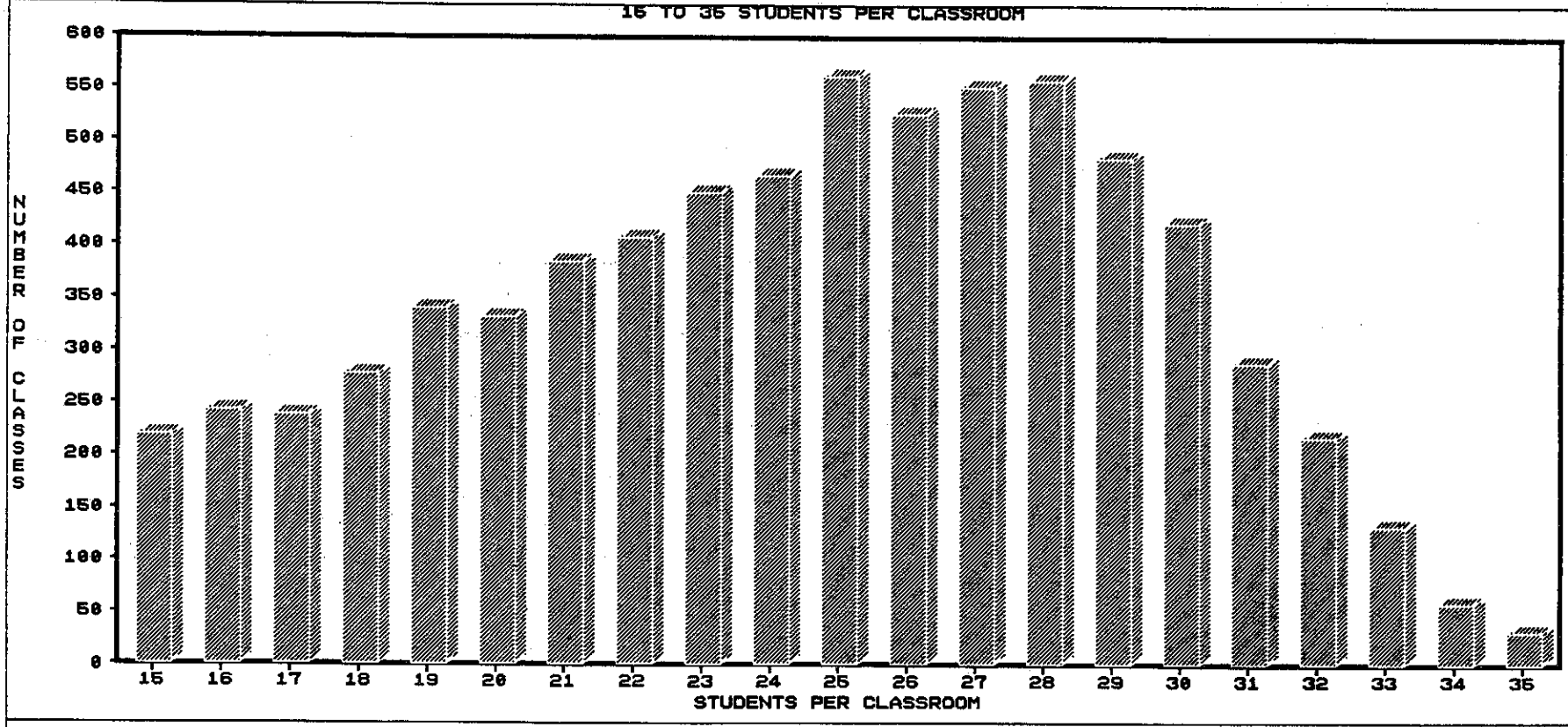
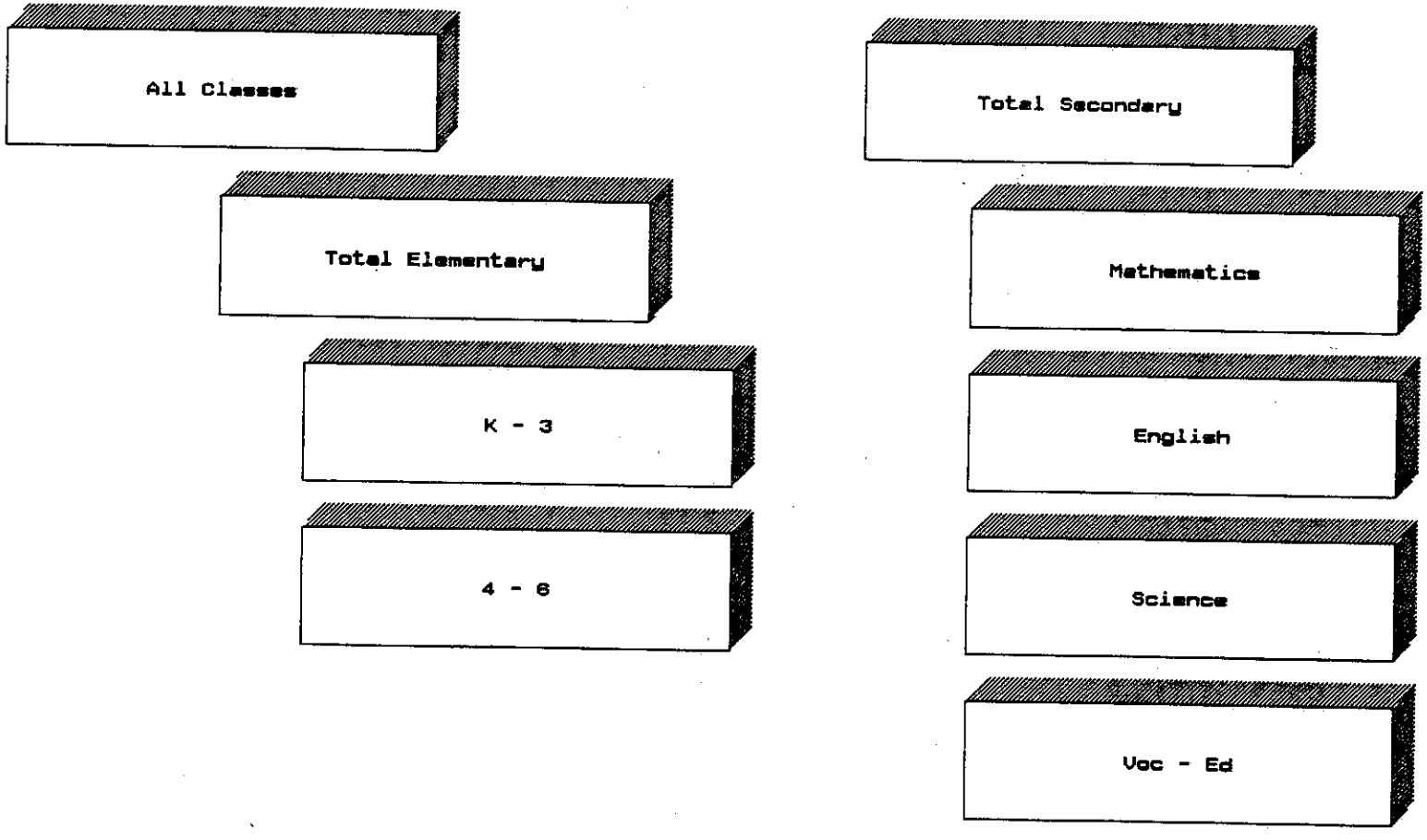


* WASHINGTON STATE TOTAL REPRESENTS APPROXIMATELY 1100 BUILDINGS REPORTING FROM 228 DISTRICTS IN 38 COUNTIES OR 80% OF THE STUDENT POPULATION

1-20 Students/class | 20-40 Students/class | 40-60+ Students/class

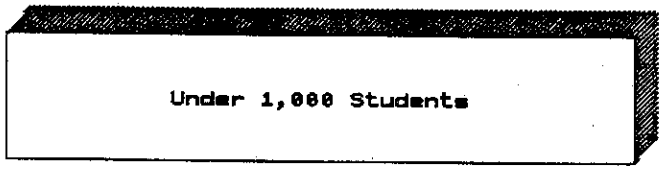
LEAP K-12 Class Size Study

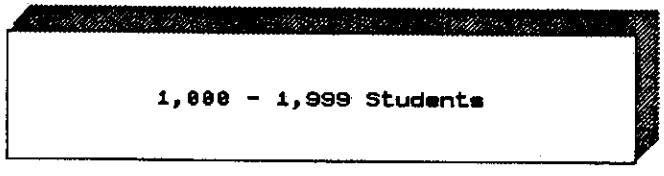
Districts By Size

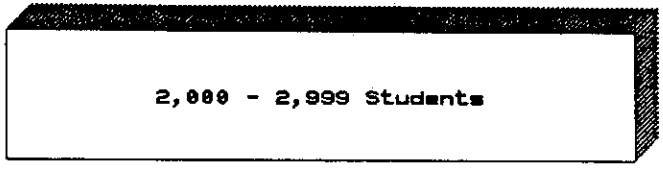


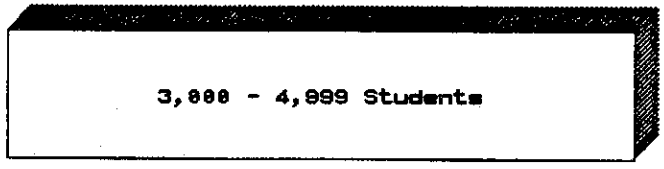
LEAP K-12 Class Size Study

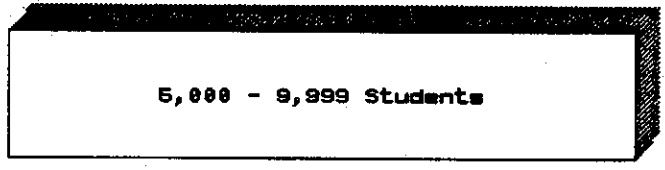
Districts by Size - Elementary

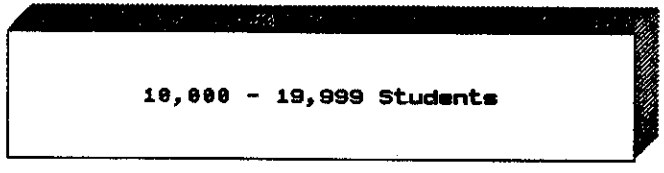


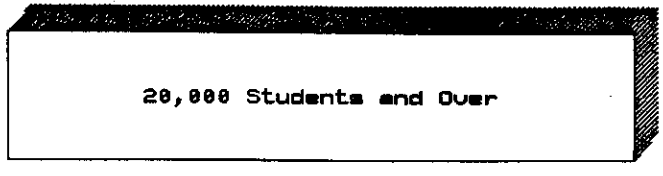










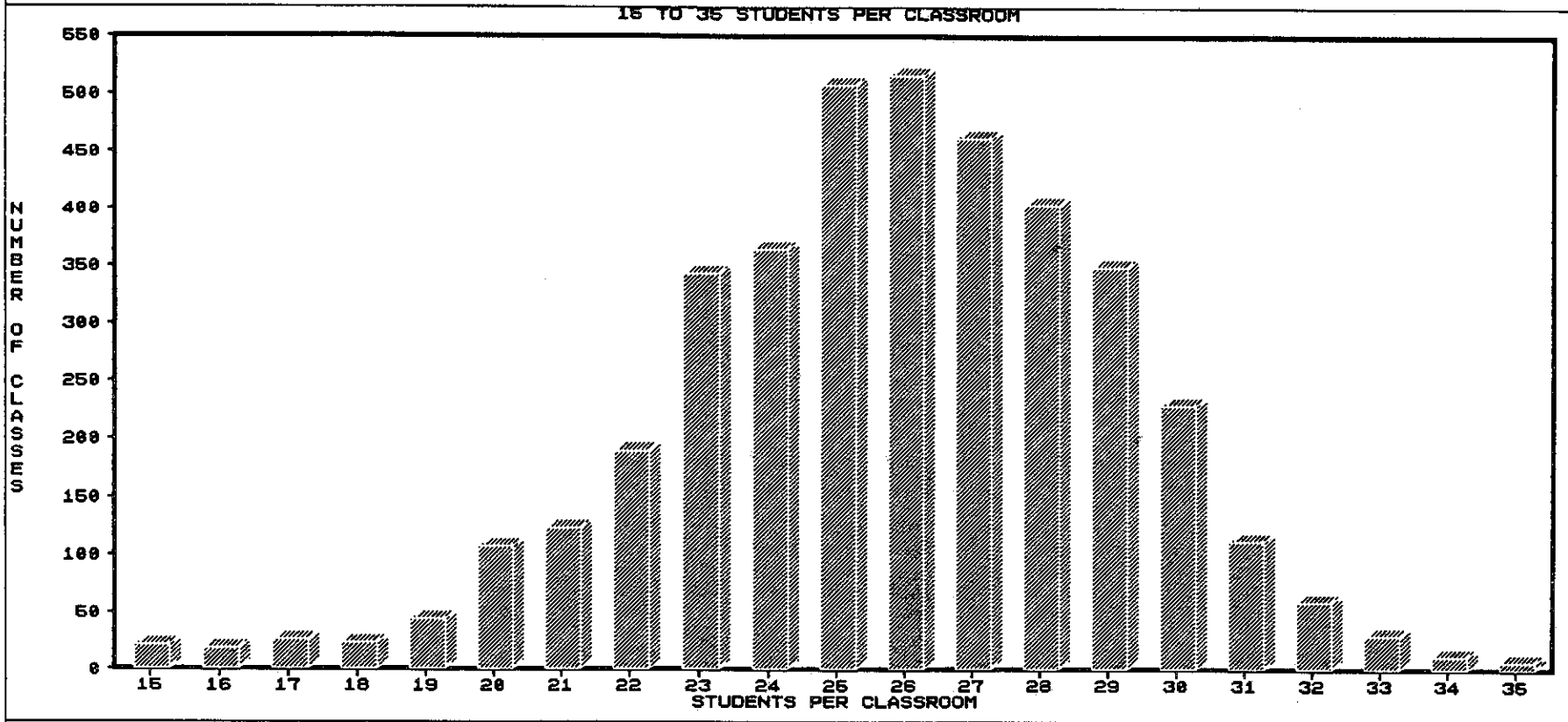


CLASSES REPORTED 4133

LEAP K-12 CLASS SIZE ANALYSIS 1987-88
DISTRICTS 10,000 - 19,999 (30% OF STUDENT POPULATION)
ALL ELEMENTARY
(PRELIMINARY DATA *)

MENU

MEAN = 25 | MEDIAN = 26 | STANDARD DEVIATION = 4.9 | STANDARD ERROR = 0.08

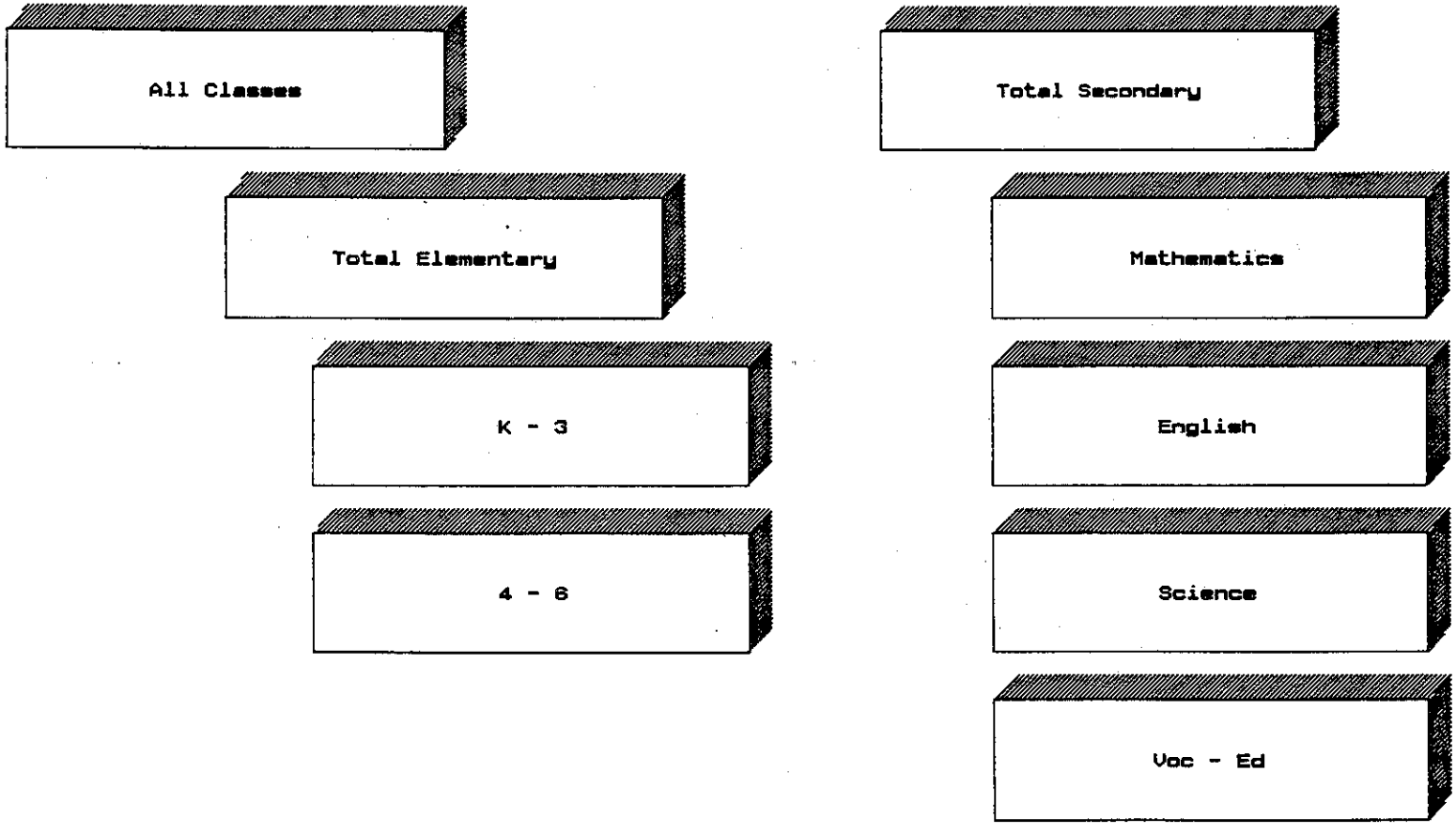


* THE FOLLOWING DISTRICTS REPORTED NO DATA:
EVERGREEN (CLARK), RENTON, YAKIMA

1-20 Students/class | 20-40 Students/class | 40-60+ Students/class

LEAP K-12 Class Size Study

North Thurston School District

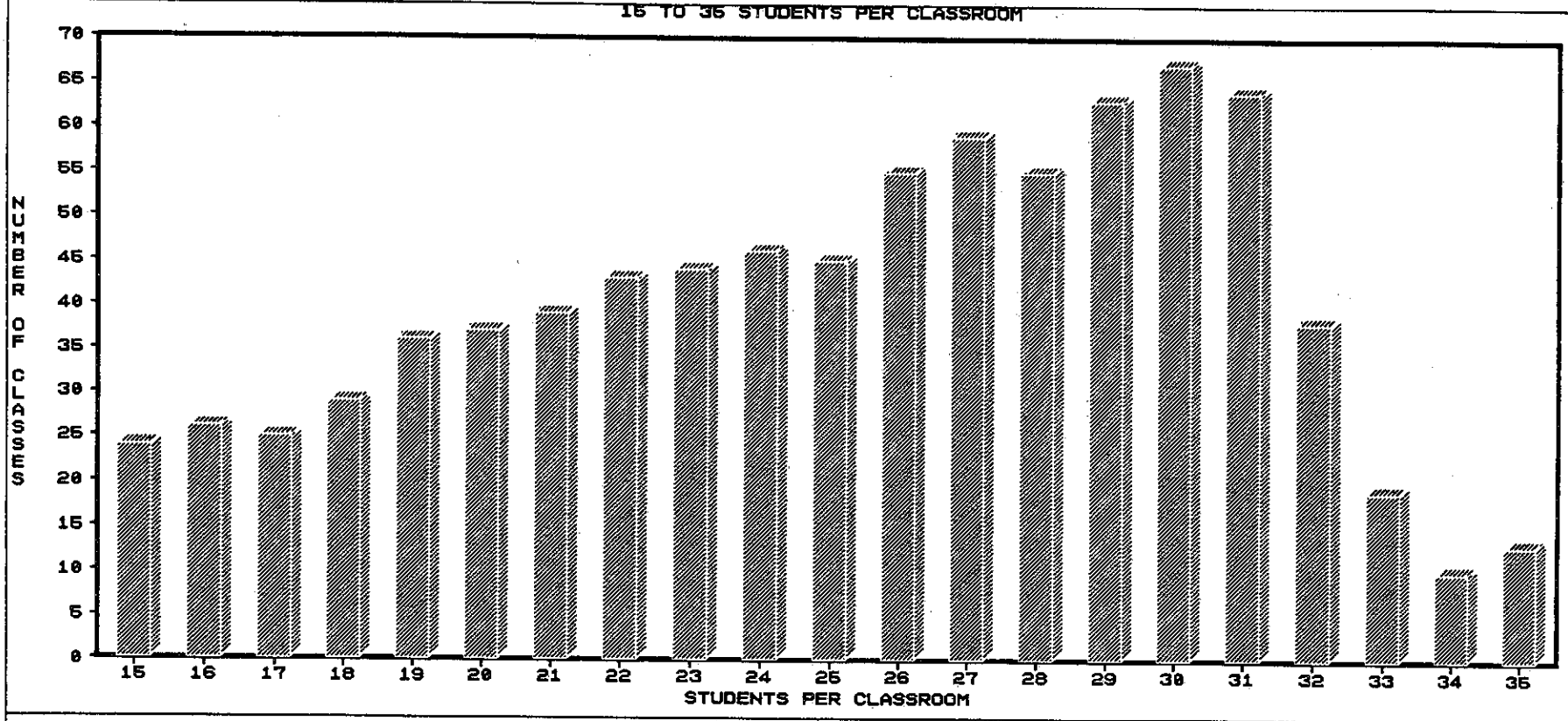


CLASSES REPORTED
1110

LEAP K-12 CLASS SIZE ANALYSIS 1987-88
NORTH THURSTON SCHOOL DISTRICT
ALL SECONDARY
(PRELIMINARY DATA)

MENU

MEAN = 22 | MEDIAN = 24 | STANDARD DEVIATION = 9.5 | STANDARD ERROR = 0.28



1-20 Students/class | 20-40 Students/class | 40-60+ Students/class

K-12 CLASS SIZE STUDY
GLOSSARY OF
STATISTICAL TERMS

CLASSES REPORTED — Total number of classes reporting data in each category.

MEAN — The K-12 Class Size mean provides an arithmetic weighted average. It represents the sum of the number of classes of each size multiplied by the number of students in each class size divided by the total number of classes reported. It provides the first measure of central tendency for class size.

MEDIAN — The K-12 Class Size median indicates the mid point of the distribution of the classes reported. The number of classes greater than the median class size is equal to the number of classes less than the median class size. It provides the second measure of central tendency for class size.

MODE — The K-12 Class size mode represents the class size which occurs most frequently in the series.

STANDARD DEVIATION — The K-12 Class Size standard deviation shows how the class sizes reported are spread out in relation to the mean. It indicates the average of the differences between each class size reported and the mean class size reported. It provides a starting point for evaluating the variation of class sizes reported.

STANDARD ERROR — The K-12 Class Size standard error indicates how significantly different the distribution reported is likely to be in relation to the distribution of all the classes statewide. Because the number of classes reported is very large (more than 70,000, or approximately 80% of the classes statewide), the standard error for statewide analysis is relatively small.

K-12 STATEWIDE REPORTING SYSTEM
CLASS SIZE INFORMATION

REPORT TO THE LEGISLATURE

PART IV

CLASS SIZE STUDY

by: Education Committee
House of Representatives

CLASS SIZE STUDY

EXECUTIVE SUMMARY

Susan D. Patrick
Counsel/Analyst
Education Committee
House of Representatives

Fall 1988

SECTION I

INTRODUCTION

The study of class size and function was conducted under a directive from the Legislative Evaluation and Accountability Program to the Education Committees of the House of Representative and the Senate. The committees were asked to design and carry out a study to determine current class size in Washington state.

Since the appearance of state and national reports in 1985, urging educational reform, there have been repeated discussions of what is the actual class size in Washington state. The importance of this question has become more significant as we have seen:

A. Decreasing class size in other states and national reports on our large class size;
B. Decisions made to reduce our class size by a systematic infusion of funds particularly at the K-3 level and changing of compliance standards to require that the K-3 class size be lower than the Grade 4-12 class size;
C. The backlog of school construction an modernization projects which remain unfunded as we face a projected increase in student population at the elementary level; and
D. The impact of decisions such as mainstreaming of special education students and provision of remediation services in the regular classroom.

The study sample was comprised of eight school districts stratified by district size. One district was selected to represent districts from 400 to 700, 701 to 1,000, 1001 to 2,000, 2001 to 4,000, 4001 to 6,000, 6001 to 10,000, 10,001 to 15,000 and districts over 15,000 students. The eight districts selected included urban, rural and suburban districts from eastern and western Washington. It should be noted that this study was a snapshot in time of eight school districts of varying sizes and should be considered only in that light.

A elementary school, middle or junior high school and high school were selected in each school district as the buildings to be surveyed. Teachers in the selected buildings were asked to complete a questionnaire which asked for:

a. The number of teachers in the classroom;
b. The number of students in the classroom;
c. For self contained classrooms, the number of students from other classrooms which come to this classroom for instruction during the day;
d. For self contained classrooms, the number of students from the classroom who leave the classroom during the day for special services;
e. The type of special services provided to the students identified in item d and the number of students receiving each service;
f. The grade or subject being taught; and
g. Whether teachers' aides, student aides, or volunteers are being used and what type of duties they are assigned. The possible duties are clerical, instructional or supervisory.

Classroom teachers in self-contained elementary classrooms or special education classrooms were instructed that if the regular teacher was replaced by a specialist, such as a music specialist, to allow the regular classroom teacher planning time, the specialist was not counted in the number of teachers assigned to the classroom. The teachers were also asked not to count special education or remediation teachers who worked with small groups of children pulled from the classroom or the Learning Assistance Teacher who may see an individual or small group of children in the classroom.

Classroom teachers in departmentalized middle, junior high and high school programs were asked to provide their teaching assignments by period including identification of planning periods and the number of students seen each period, as well as, the subject taught each period. In preparing the questionnaire it was determined that, in departmentalized programs, students with special needs are assigned to the special service for an entire period. Consequently, columns c, d, and e did not apply to the departmentalized middle, junior high or high school programs.

Each district was visited during October and information was collected from the teachers. To collect and verify information at the elementary level, it was often necessary to interview each classroom teacher individually. This was particularly important for the items related to students leaving the classroom for special services. At the middle, junior high and high school level, teachers completed and returned the forms. Any questionable data was checked with the master schedule for the building or by personal contact with the teacher.

An average class size for the entire school and by grade level was calculated for each elementary and middle school building. Four elementary school building included only grades kindergarten through five. The sixth grades were departmentalized and part of the middle school. Therefore these sixth grade class sections were included in the middle school count. The four remaining districts operated self-contained sixth grade classes as part of the elementary school and were included with the elementary grades kindergarten through six count. For districts which had a departmentalized seventh and eighth grade housed with the high school, these classes were counted with the middle school.

High school classes were defined as class sections for grades nine through twelve. An average class size was calculated for the entire high school and by subject matter.

SECTION II

FINDINGS

1. The mean class size and most commonly occurring class size at the elementary, middle school and high school from the entire sample are as follows:

Table 1

MEAN CLASS SIZE AND MOST COMMONLY OCCURRING CLASS SIZE BY SCHOOL TYPE

	Elementary K-6	Middle 6-8	High 9-12
MEAN CLASS SIZE	26.6	25.9	23
MOST COMMONLY OCCURRING CLASS SIZE	25, 27	28	30

2. The availability of classroom space is a factor in reduction of class size. In the eight elementary buildings, three vacant rooms were found. These rooms were available for only half a day. In the middle schools and high schools approximately ninety percent of the classrooms were available for one period per day while the teacher assigned to that room had a preparation period. The remaining ten percent of the classrooms were used every period by teachers who were not assigned a single classroom. Some of the vacant rooms were designed for a specific purpose and were not suitable for other classes.

3. There is a significant impact on the regular classroom by mainstreaming special education students and providing special services for students in and outside the classroom. A teacher assigned twenty-eight students may have as many as fourteen of the students receiving special assistance. For this teacher it is difficult to find all the children in the classroom to receive instruction in subjects that are not taught in the special programs. Provision of special services in the class may also result in two adults competing for the attention of children in a crowded classroom.

4. The use of teachers' aides has significantly increased at the elementary level. Teachers' aides are used for instructional and clerical duties. In the middle school and high school students are used to fill the roll of the adult teachers' aide found in the elementary school.

5. Additional study is necessary to determine if the class size compliance factor, requiring classes in grades kindergarten through three be lower than classes in grades four through twelve, can be obtained without distortion of class size data.

6. School districts have devised their own methods for dealing with the equalization of class size. Five options identified by this study are:

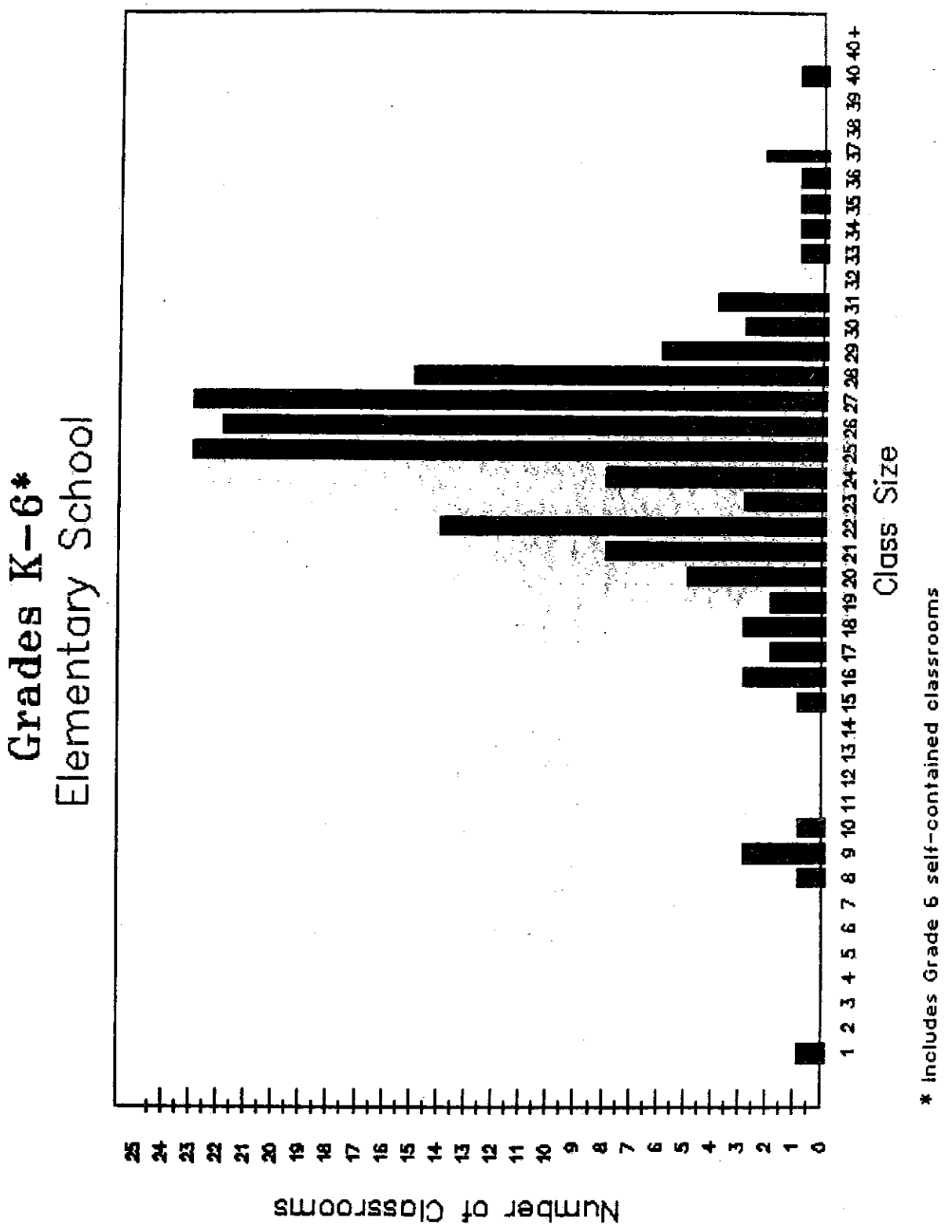
a. Extra money for material to be selected by the teacher of a large

class,

b. Extra money to pay for a teacher's aide for the teacher of a large class,
c. Extra pay for the teacher of a large class,
d. Equalization of class size within the grade level in a building, and
e. Weighting special education students as one and one half students for the purpose of determining class size.

Little information is available at this time on the number of districts which have adopted some method of class size equalization.

CHART 1



* Includes Grade 6 self-contained classrooms

CHART 2

ELEMENTARY SCHOOLS

Mean Class Sizes:

Building 1 A

Total School	24
Kindergarten	24
Grade 1	25
Grade 2	25
Grade 3	25
Grade 4	27
Grade 5	27
Special Ed	9

Building 2 A

Total School	23
Kindergarten	22
Grade 1	18
Grade 2	19
Grade 3	25
Grade 4	30
Grade 5	26
Grade 6	29
Special Ed	10

Building 3 A & B

Total School	21
Kindergarten	22
Grade 1	17
Grade 2	19
Grade 3	22
Grade 4	24
Grade 5	20
Grade 6	24
Special Ed	1

Building 4 A

Total School	23
Kindergarten	20
Grade 1	24
Grade 2	26
Grade 3	21
Grade 4	26
Grade 5	24

Building 5 A & B

Total School	26
Kindergarten	27
Grade 1	21
Grade 2	28
Grade 3	27
Alts 1,2,3	29

Total School	27
Grade 4	27
Grade 5	28
Grade 6	25
Alts 4,5,6	31

Building 6 A

Total School	26
Kindergarten	21
Grade 1	27
Grade 2	26
Grade 3	27
Grade 4	26
Grade 5	29

Building 7 A

Total School	25
Kingergarten	26
Grade 1	22
Grade 2	22
Grade 3	26
Grade 4	24
Grade 5	27
Grade 6	28

Building 8 A

Total School	28
Kindergarten	25
Grade 1	28
Grade 2	36
Grade 3	37
Grade 4	28
Grade 5	26

Grades K–3

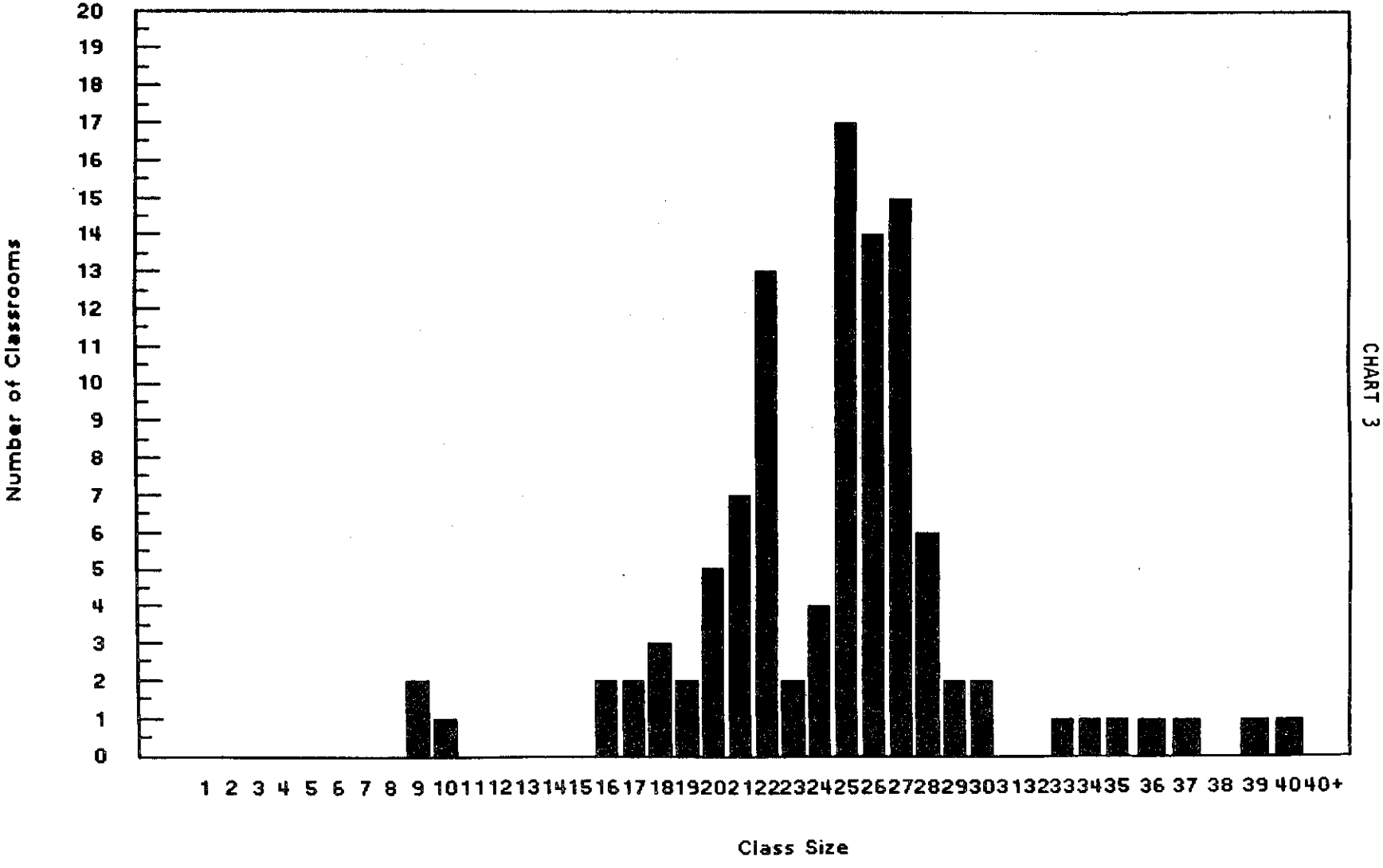
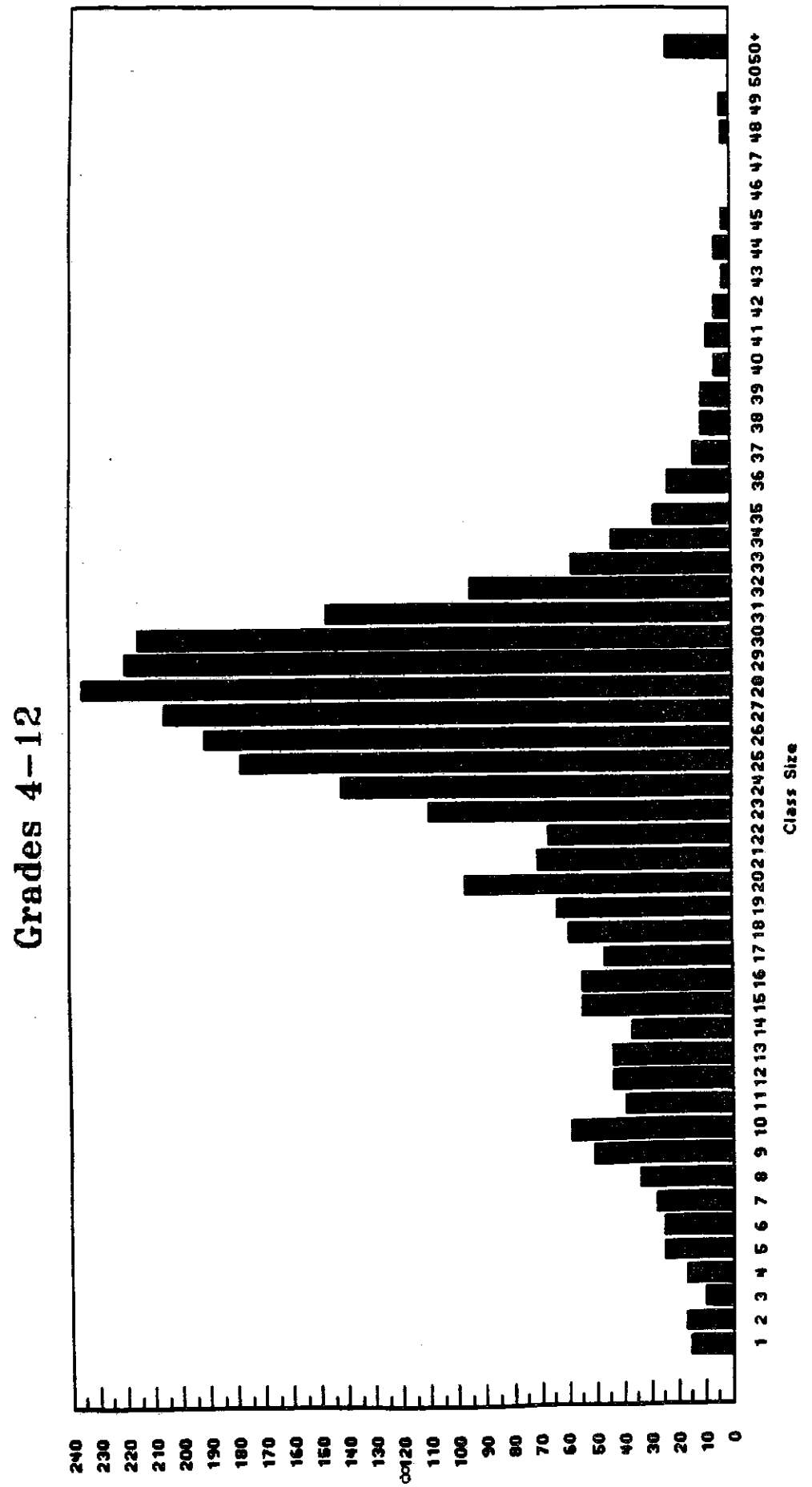


CHART 3

CHART 4


Grades 4–12
Count
240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 50+
Class Size

Grades 6*–8
Middle School

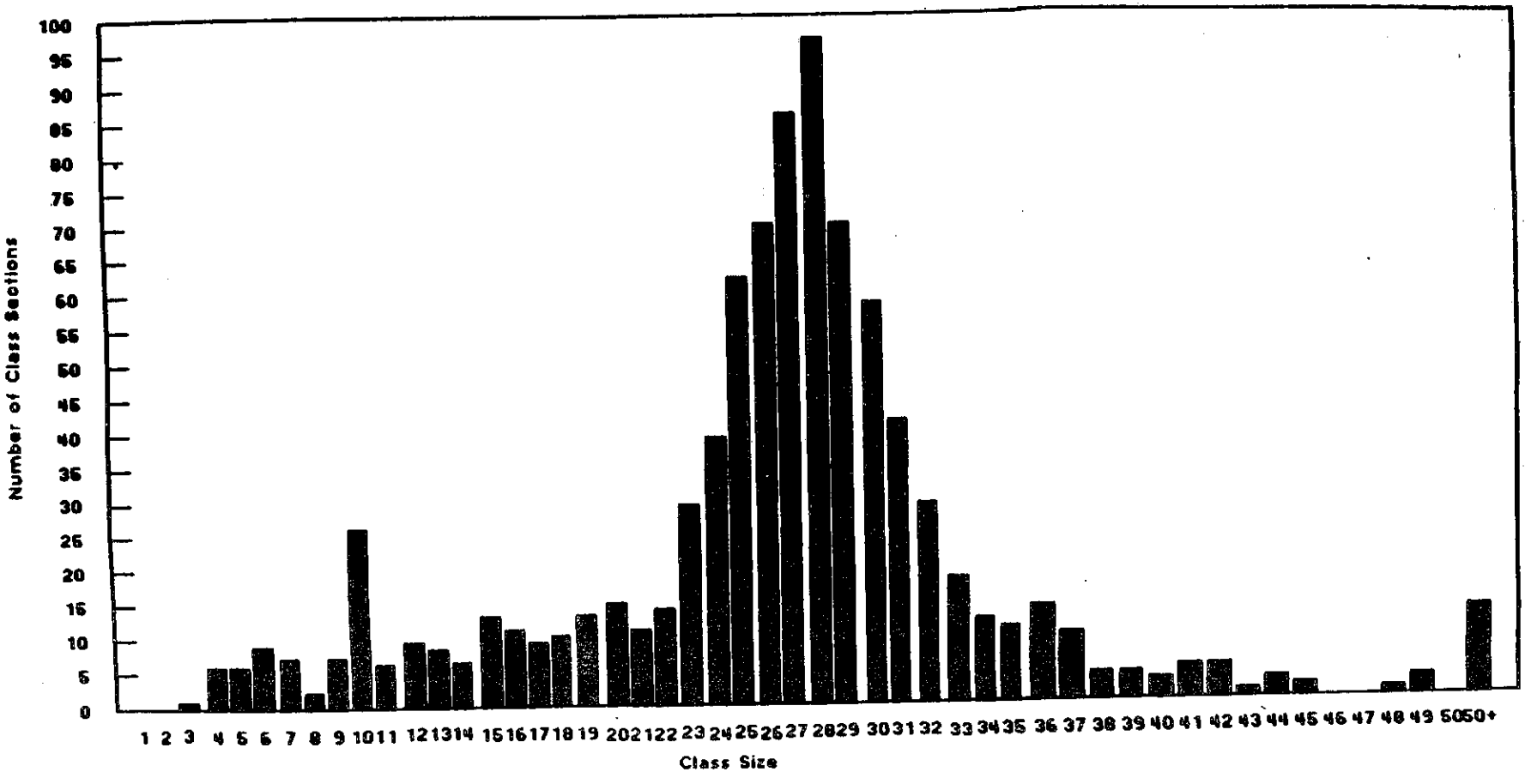


CHART 5

* Includes Grade 6 departmentalized class sections.

MIDDLE SCHOOL

Building 1 B	
Total School	26
Grade 6	28
Grade 7	27
Grade 8	27

Building 2 B	
Total School	18
Grade 7	19
Grade 8	17

Building 3 C	
Total School	17
Grade 7	15
Grade 8	19

Building 4 B	
Total School	24
Grade 6	28
Grade 7	26
Grade 8	26
ESL	13
Special Ed	10
Chpt. 1, LAP	7

Building 5 C	
Total School	23
Grade 7	21
Grade 8	15

Building 6 B	
Total School	25
Grade 6	29
Grade 7	24
Grade 8	24

Building 7 B	
Total School	26
Grade 7	25
Grade 8	27

Building 8 B	
Total School	31
Grade 6	27
Grade 7	31
Grade 8	34

Grades 9–12
High School

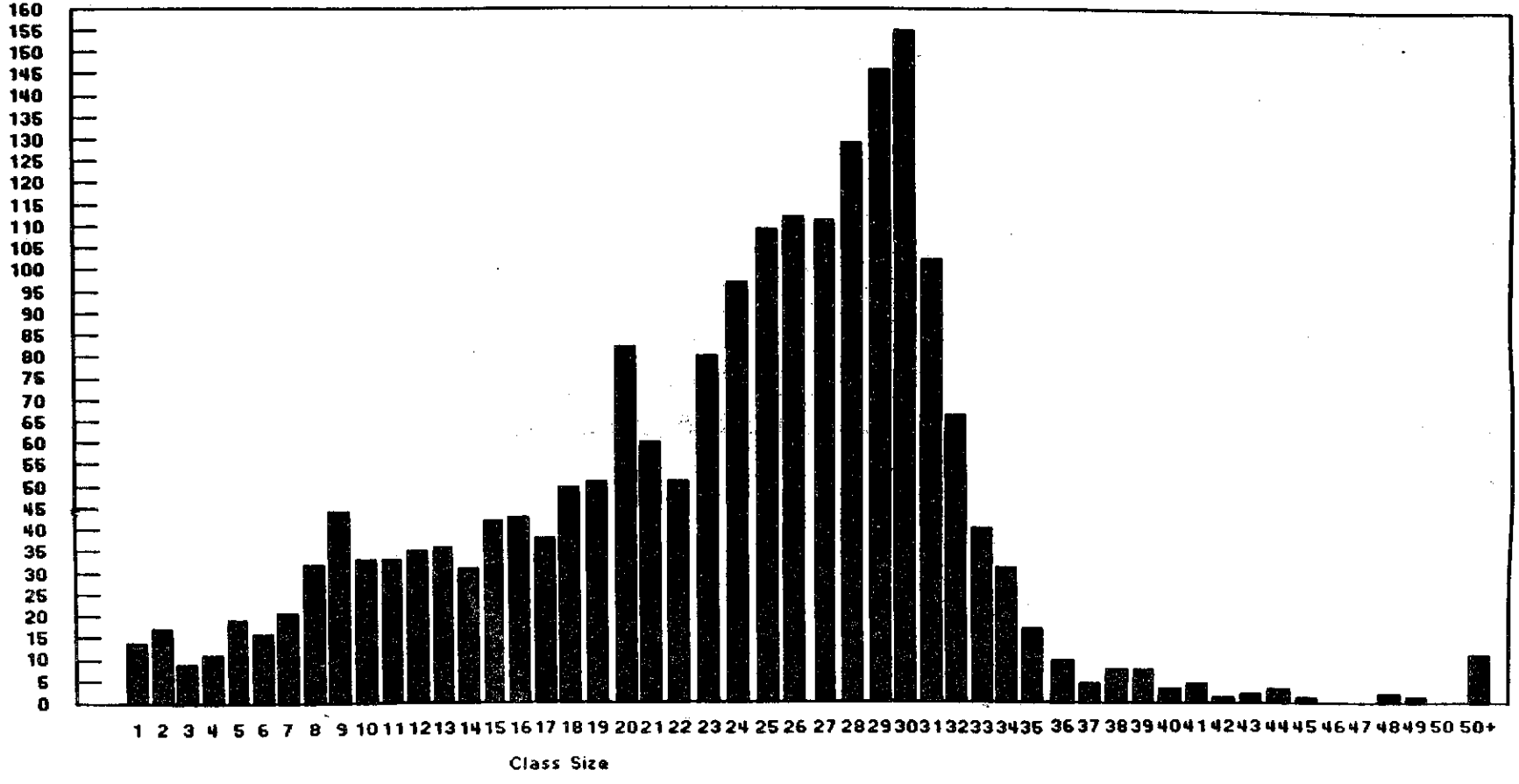


CHART 7

CHART 8

HIGH SCHOOL

Building 1 C	
Total School	27
English	26
Social Studies	31
Science	27
Math	29
Foreign Lng	28
Business	34
Voc Ed	12
Art	28
Health	19
Music	36
PE	35
Special Ed	11

Building 2 C	
Total School	20
English	23
Social Studies	22
Science	22
Math	19
Foreign Lng	18
Business	21
Voc Ed	18
Art	21
Health	19
Music	25
PE	22
Special Ed	7
Reading	20
Chpt 1	7

Building 3 C	
Total School	16
English	17
Soc Studies	20
Science	17
Math	16
Foreign Lng	13
Business	13
Voc Ed	11
Art	20
Health	15
Music	27
PE	21
Special Ed	7

Building 4 C	
Total School	24
English	28
Social Studies	27
Science	26
Math	28
Foreign Lng	26
Business	24
Voc Ed	14
Art	23
Health	25
Music	44
PE	29
Special Ed	11
Chpt 1	15

Building 5 C	
Total School	22
English	26
Social Studies	26
Science	24
Math	23
Foreign Lng	23
Business	19
Voc Ed	14
Art	25
Health	20
Music	27
PE	34
Special Ed	8
Dropout	7

Building 6 C	
Total School	25
English	27
Soc Studies	29
Science	28
Math	29
Foreign Lng	26
Business	21
Voc Ed	20
Art	22
Health	28
Music	25
PE	29
Special Ed	9

Building 7 C	
Total School	26
English	26
Social Studies	28
Science	27
Math	27
Foreign Lng	25
Business	26
Voc Ed	25
Art	24
Health	25
Music	25
PE	33
Special Ed	12

Building 8 C	
Total School	20
English	20
Social Studies	22
Science	22
Math	22
Foreign Lng	19
Business	20
Voc Ed	18
Art	16
Health	23
Music	33
PE	23
Special Ed	10
Skills Cntr	3